WTCI-42-P

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. L. Menno, Manager, Contract Tenant Services Division, WT&EDD
From: Ennala Ramabhushanam
Date: November 22, 1991
Subject: **WTC - ALTERATION APPLICATION W-4636 - CEDEL, S.A. - 1 WTC - 90TH FLOOR - GENERAL CONSTRUCTION**

Reference: Review Request dated 11/13/91

Copy To: J. Costa
G. Gaeta
R. Wegel
Job Folder
Chrono Folder

A review of the material listed below and submitted with the referenced request for the subject application has been made.

The previous recommendation that approval to proceed with construction be given subject to..., has been changed to recommending that approval to proceed with construction be given.

There are no comments.

Drawings: Test Reports:

REMARKS: 1) See attached list of drawings recommended for approval.

Please note that this list includes all approved drawings as of this memorandum date.

2) This memorandum was transmitted to the Facility via OA on November 22, 1991.

for Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

KG/dm

[redacted]

ATTACHMENT

ALTERATION APPLICATION V-4636

List of drawings recommended for approval:

Dwg.	A-1	revised	03/12/91
	A-2	revised	03/12/91
	A-3	revised	09/12/91
	A-4	revised	03/12/91
	A-5	revised	03/12/91
	A-6	revised	03/12/91
	A-7	revised	03/12/91
	A-8	revised	03/12/91
	A-9	revised	09/12/91
	A-10	revised	03/12/91
	A-11	revised	03/12/91
	A-12	dated	12/06/90
	E-1	revised	04/16/91
	E-2	revised	03/06/91
	E-3	revised	03/12/91
	M-1	revised	03/06/91
	M-2	revised	03/06/91
	M-3	revised	03/06/91
	P-1	revised	03/06/91
	P-2	revised	03/06/91
	SP-1	revised	03/12/91
	SP-2	revised	03/06/91

TENANT ALTERATION REVIEW REQUEST
World Trade and Economic Developement

No. Routing Loc.	Applicant's Name: CEDEL, SA	Facility: WORLD TRADE CENTER
QUALITY ASSURANCE 51W ✓ P.Cooper W/3	T.A.A. No: 4636	Dwg.No(s). ___ See attached A3 - A9
IN HOUSE 36S ___ R.Becker W/1 ___ V.Levinson W/1 ___ Sen Pu Chiao W/1	Contract No: 4636 Location: 591,970 Date: 11-13-91	
WT&EDD CONSTR. 36N ___ P.Cavanagh W/1	[ ] SPECIAL INSTRUCTIONS:	
OPERATIONS B2 RM.211 ___ T.Cancelliere W/1	Originating Unit: 829	Proj.Mgr: John P.Vinciguerra Extn: 435 - 2960 36W
RISK MANAGEMENT Z57 __S.Altman PATC 3FL W/1 __G.Sepie PATC 2FL __	Please return no later than: 11-27-91 **Supervisor: Gerard Gaeta Extn. 435-2057 36W**	
ASBESTOS 36N ___ F.Boyce W/1	Submission: 1st [ ] 2nd [ ] 3rd [ ] 4th [ ] 5th [ ] 6th [ ] other [7] Construction cost: $ 200,000	

Description of work:

[✓] General construction: [ ] Construction limited to: W-4636 (7)

[ ] Minor work including:

[✓] Architectural [ ] Electrical [ ] Plumbing [ ]
[✓] Structural [ ] HVAC [ ] Sprinkler [ ]
[ ] Other: _____

THE PORT AUTHORITY OF N.Y. & N.J.
PROJECT MGR. DEPT., QUALITY ASSURANCE DIV.
DESIGN STANDARDS
office copy
NOV 14 1991
RECEIVED
ALTERATIONS APPLICATION
TENANT CONSTRUCTION REVIEW UNIT

Attached are:

[ ] BS&A / MEA resolutions [ ] Laboratory test reports for carpeting
[✓] Catalog cuts [ ] Samples [ ] _____
[✓] Consultants' responses to Port Authority review comments

Remarks: _____

cc: G. Daly, G. Gaeta, E. Monteverde, T. Rush, J. Uryini, R. Wegel, G. Wenger, J.P. Vinciguerra, T. Lynch
(Rentals Rep.)

Signature: Gerard Gaeta Date: 11/14/91
(For) **Louis Menno, Manager**
Contract and Tenant Services Division
World Trade and Economic Developement

jpv 05/21/91

mario a pesa architect
449 west 51st street
new york, ny 10019
(212) 765-3838

TRANSMITTAL

OUR JOB #:

YOUR JOB #:

DATE: Sept. 24, 1991

PROJECT:
CEDEL, S.A.
One World Trade Center 90th Fl
NYPA

TO:
Mr. John Vinciguria
Approvals & Construction
NY Port Authority
One World Trade Center

ATTENTION:

GENTLEMEN: ☒ HEREWITH ☐ UNDER SEPARATE COVER

WE ARE FORWARDING: ☐ BY MAIL ☐ BY MESSENGER ☐ BY BLUEPRINTER

DWG #	LATEST DATE	DESCRIPTION	NO. OF SEPIAS	NO. OF COPIES
A-9	9-12-91	Partitions Types/Details/Hardware Schedule		6
A-3	9-12-91	Reflected Ceiling Plan		6

THIS MATERIAL IS SENT FOR:

YourApproval

REMARKS:

RECEIVED
SEP 24 1991
PORT AUTHORITY OF NY & N.J.
WIED DEPARTMENT, 1WTC

PLEASE SIGN DUPLICATE OF THIS FORM & RETURN AT ONCE.

FIRM NAME _____

DATE _____ BY: _____

BY: MARIO A. PESA

November 8, 1991

Mr. Gerard Gaeta, R.A.
The Port Authority of New York and New Jersey
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
Outstanding Review Comments
d/D Project #1150

Dear Mr. Gaeta:

In response to your letter to Mr. Philip Humbert of Cedel, S.A. on September 3, 1991, please note the following:

Architectural

1. Please refer to attached documentation which includes independent reports for WC/01 and the invoices as requested for PL-01 and PL-02 that identify the purchased laminate.

Structural

2. Please refer to dePolo/Dunbar drawing A-3 revised dated September 9, 1991.

3. Please refer to dePolo/Dunbar drawing A-9 section #6 revised dated September 9, 1991 which clarifies the method of support for this detail.

We are enclosing six copies of each drawing which have been signed and sealed.

If you have any questions, please call.

Respectfully,

dePOLO/DUNBAR INCORPORATED

Frank Loffredo
Principal

FL:dd
encs.

201- 227-3123

PAGE

SOLD TO: 00021

AA1 WOODWORK INC.
647 MARSHALL ST.

ELIZABETH NJ 07206

MAY 17 1991

SHIP TO: 00021

AA1 WOODWORK INC.
647 MARSHALL ST.

ELIZABETH NJ 07206

SALESMAN 13

DELIVER	P.O. NO	JOB NO.	F.O.B.	TERMS:	DATE
			FAIRFIELD	NET 30 DAYS	5/10/91

PRODUCT NO.		QUAN. ORD.	BACK ORD.	QUAN. SHIP	MON	17H	DESCRIPTION	UNITS	UNIT PRICE	EXTENSION
3015053	28	2	1	1	24	96	SHELL OXIDE	17.00	1.380	23.46

3015058

3015058

Refers to Grade 50 FORMICA FIRE/RATED

PAID
243
CL 2078 07/03/91

CARTON CHG	0	.00	.00
SHIPPING			.00
CITY TAX - 001			.00
STATE TAX - 001			.00
COUNTY TAX			.00
TOTAL AMT			23.46

ALL RETURNS SUBJECT TO 15% HANDLING CHARGE
SHORTAGES AND ERRORS MUST BE NOTED AT TIME OF DELIVERY

FABRICATORS SUPPLY CO.

425 US HIGHWAY NO 46
FAIRFIELD, NJ 07004
TERMS: NET 30 DAYS NO DISCOUNT

201-227-3123

PAGE 1

SOLD TO: 00021

AAI WOODWORK INC.
647 MARSHALL ST.

ELIZABETH NJ 07206

SHIP TO: 00021

AAI WOODWORK INC.
647 MARSHALL ST.

ELIZABETH NJ 07206

MAY 20 1991

SALESMAN 13

VIA	P.O. NO.	JOB NO.	F.O.B.	TERMS	DATE
LIVER			FAIRFIELD	NET 30 DAYS	5/13/91

PRODUCT NO.		QUAN. ORD.	BACK ORD.	QUAN. SHIP	WDH	LTH	DESCRIPTION	UNITS	UNIT PRICE	EXTENSION
5045058										
5045058	48	2	1	1	48	96	ROSE ASH GRAFIX	33.00	1.280	42.24
4372058	48	1		1	48	96	VGP CONCRETE	32.00	.940	30.08
							CARTON CHG	1	.00	.00
							SHIPPING			.00
							CITY TAX - 001			.00
							STATE TAX - 001			.00
							COUNTY TAX			.00
							TOTAL AMT			72.32

PAID
5-13
CK 2073 07/03/91

5045058

Refers to Grade 30

FORMICA FIRE/RATED

-1991 21:59 FROM F[illegible]MICA EVENDALE TO 72129[illegible]749 P.001/005

nittal Memo 7672

en Brooks

No. of Pages 5 Today's Date 9/26 Time

From FORMICA CORPORATION

Company 10155 READING ROAD

Location CINCINNATI, OHIO 45241 Dept. Charge

ATT: LARRY KNAPP

Fax # 212-947-6749 Telephone # 212-947-6645 Fax # 513-786-3195 Telephone # 513-786-3[illegible]

Comments

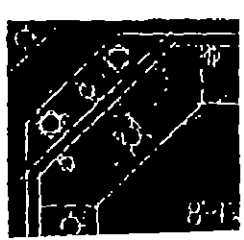
Original Disposition: ☐ Destroy ☐ Return ☐ Call for pickup

Jude Cadel
Bldg [illegible]

FORMICA BRAND products

Fire-Rated Laminate

THICKNESS .05
3.7 X 10 IN/IN/DEG CPAS
MPACT RE
COEFFICIENT OF L
2.68 x 10 PS
COEFFICIENT OF LINE



RECOMMENDED APPLICATION

Grade -50 (FR 50): FORMICA® brand Fire-Rated Laminate, Grade -50/HGF, is intended for application to interior horizontal or vertical surfaces where low flame spread ratings are required.

Grade -32 (FR 32): FORMICA® brand Fire-Rated Laminate, Grade -32/VGF, is intended for application to interior vertical surfaces where low flame spread ratings are required.

Grade -89: FORMICA® brand Fire-Rated backing sheet, Grade -89/BGF, is intended for application to interior horizontal or vertical surfaces as a balancing sheet for Grade -50/HGF where low flame spread ratings are required.

Grade -87: FORMICA® brand Fire-Rated backing sheet, Grade -87/ BLF, is intended for application to interior ver-tical surfaces as a balancing sheet for Grade -32/ VGF where low flame spread ratings are required.

Fire-Rated grades are used where heat resistance, design, appearance, quality, durability, and resistance to stain from ordinary sources are required. These non-forming grades are classified by Underwriters Laboratories Inc., File R4540, and carry labels specifying fire ratings in accordance with data developed by test method UL723/ASTM E84.

FABRICATION AND ASSEMBLY

Limitation: FORMICA® brand Fire-Rated Laminate is not recommended for application directly to plaster, gypsum board, or concrete. It should not be used in areas exposed to temperatures exceeding 275°F or for exterior applications. Finished panel width should not exceed 24" maximum for Grade -32/VGF. Contact adhesives are not recommended for use with Grade -32/VGF. Finished panel widths using Grade -50/HGF laminate bonded with contact adhesive should not exceed 24".

Storage: Laminate should be stored horizontally with the top sheet turned face down and a caul board placed on top to protect the material from possible damage and reduce the chance of warpage of the top sheets. Laminate should be protected from moisture and should never be stored in contact with the floor or outside wall.

Preconditioning: Prior to fabrication, allow the laminate and the substrate to acclimate for at least 48 hours at the same ambient conditions. Optimum conditions are approximately 75°F and at a relative humidity of 45 to 55%. Provision should be made for the circulation of air around the components.

Substrates: To maintain the classifications listed by Underwriters Laboratories Inc. in File R4540, FORMICA® brand Fire-Rated Laminate must be bonded to nominal 3/8" thick or greater, integrally treated wood [illegible] Classification Marking of Underwriters Laboratories Inc. reading "Wood Particleboard" with Surface Burning Characteristics not in excess of 20 for flame spread and 25 for smoke developed; or nominal 1/4" thick or greater, integrally treated plywood, identified as J.H. Baxter's "Flamescape", bearing the Classification Marking of Underwriters Laboratories Inc., reading "Treated Plywood" with Surface Burning Character-istics Classification of "FR-5." Substrates should be smooth, well sanded, and uniform in thickness. To assure uniform bonding, remove any efflorescence on the substrate or laminate by lightly sanding and thoroughly brushing.

Adhesives: Indspec Penacolite G1149A/G1131B or G1124A/G1124B resorcinol adhesive must be used. Follow the adhesive manufacturer's recommendations.

Other adhesives may be used as described in the Fabrication Data Sheets for Building Products and Shipbuilding. However, when those assemblies are used in applications where a classification is required by Building Codes, Fire Classification testing of those assemblies will be required.

Assembly: Material, equipment, and workmanship should conform to the industry standard practices, conditions, procedures, and recommendations as specified by NEMA LD 3-1990, Section 4, Architectural Woodwork Quality Standards, National Association of Plastic Fabricators, and ANSI 161.2-1979 standards.

Fire-rated panel assemblies should be laminated with the appropriate fire-rated backer sheet such as Formica Grade -89/ BGF or Grade -87/BLF backing sheet to minimize warpage.

All inside corners of cutouts must be radiused as large as possible (1/8" minimum) to avoid stress cracking. The edges and corners should be filed smooth and free of chips or nicks.

TECHNICAL DATA

Performance Compliance of FORMICA® brand Fire-Rated Laminate

NEMA STANDARDS PUBLICATION LD 3 -1990

Physical Properties	LD 3 Test	FORMICA® brand Horizontal Grade -50/HGF NEMA Type FR 50	FORMICA® brand Vertical Grade -32/VGF NEMA Type FR 32
Nominal Thickness - in.		.050 ± .005	.032 ± .005
Wear Resistance - cycles	n/a	400 (min.)	300 (min.)
Scuff Resistance	3.1	NE	NE
Impact Resistance - in.	3.2	45 (min.)	20 (min.)
Dimensional Change	3.3		
Machine Direction - %	3.4	0.5 (max.)	0.7 (max.)
Cross Direction - %		0.9 (max.)	1.2 (max.)
Boiling Water Resistance	3.5	NE	NE
High Temperature Resistance	3.6	SL	SL
Radiant Heat Resistance - sec.	3.7	75 (min.)	50 (min.)
Stain Resistance	3.9		
Reagents 1-23		NE	NE
Reagents 24-29		M	M
Light Resistance	3.10	SL (min.)	SL (min.)
Appearance	3.11	No ABC defects	No ABC defects
Cleanability - cycles	3.12	25 (max.)	25 (max.)

CODES AND SPECIFICATIONS

FORMICA® brand Horizontal Fire-Rated Grade -50/HGF NEMA Type FR 50

- U.S. Federal Mobile Home Construction and Safety Standard, Part II, 280.203 (a)
- U.S. Federal Motor Vehicle Safety Standard, No. 302
- National Sanitation Foundation (NSF) Standard 35 for work contact, splash, and non-work contact surfaces
- International Organization of Standardization, ISO 4586-2
- Federal Aviation Administration, (FAA) Part 25.853 (a&b)
- U.S. Military Specification, MIL-P-17171D (SH), Type IV
- U.S. Military Standard MIL-STD-1623D (SH), Bulkhead Sheathing
- Approved for surfacing of U.L. labeled fire doors, rated 1-1/2 hr., 1 hr., 3/4 hr., 20 min.

FORMICA® brand Vertical Fire-Rated Grade -32/VGF NEMA Type FR 32

- U.S. Federal Mobile Home Construction and Safety Standard, Part II, 280.203 (a)
- U.S. Federal Mobile Vehicle Safety Standard, No. 302
- National Sanitation Foundation (NSF) Standard 35 for splash and non-work contact surfaces
- International Organization of Standardization, ISO 4586-2
- Federal Aviation Administration (FAA), Part 25.853 (a & b)

FIRE TEST DATA, ASTM E-84/UL723

Fire test data for selected panel assemblies using Formica Grades -50/HGF and -32/VGF laminate are shown. Test reports are available *upon request.*

SIZES AND FINISHES

Grade	Finish	Sizes
-32/VGF	-58 Matte Finish	48" x 96" only
-50HGF	-58 Matte Finish	48" x 96" only

Matte (-58): Imparts a soft, warm, and pleasing effect that enhances the beauty of color. Matte finish produces clarity and depth resulting in a true and vibrant color translation.

COLORS AND PATTERNS

Color Portfolio, Woodgrains, FORMATIONS™, and Patterns: A broad selection of natural woodgrains, abstracts, leathers, marbles, and others, in matte finish.

FORMICA® brand Fire-Rated Laminate is not available in 840/LGP Chemical/Stain Resistant Laboratory Grade, COLORCORE® brand surfacing material, metallics, or DESIGN CONCEPTS® Collection 2.

Samples and/or paper swatches are available from Formica Corporation specification representatives or direct from Formica Corporation. Call (800) 524-0159 for "ZIP-CHIP" service.

HOW TO SPECIFY

Surface shall be FORMICA® brand Fire-Rated Laminate produced by Formica Corporation, Cincinnati, Ohio

COLOR NUMBER _____

COLOR NAME _____

GRADE _____
(indicate number and name)

FINISH _____
(indicate number and name)

All HPL shall meet the minimum performance standards of the International Organization of Standardization, ISO 4586-2, and National Electrical Manufacturers Association, LD 3-1990. Laminates must be classified by Underwriter's Laboratories Inc., File R4540, and carry labels specifying fire ratings in accordance with data developed by test method UL723/ASTM E-84.

Grade of Laminate	NEMA Grade	Adhesive	Substrate	Grade of Backer	Flame Spread	Smoke Developed
-32/VGF	FR32	Indspec G1149A/G1131B	3/8"-3/4" FR Particleboard	-87/BLF	20	10
-32/VGF	FR32	Indspec G1149A/G1131B	3/16"-11/16" FR Plywood	-87/BLF	20	100
-32/VGF	FR32	Indspec G1149A/G1131B	1/4" CAB Board		15	10
-32/VGF	FR32	Unbonded			35	40-85
-50/HGF	FR50	Indspec G1149A/G1131B	3/8"-3/4" FR Particleboard	-89/BGF	20	15
-50/HGF	FR50	Indspec G1149A/G1131B	3/16"-11/16" FR Plywood	-87/BLF	15	105
-50/HGF	FR50	Indspec G1149A/G1131B	1/4" CAB Board		15	10
-50/HGF	FR50	Unbonded			25	80
-87/BLF		Indspec G1149A/G1131B	3/8"-3/4" FR Particleboard	-87/BLF	25	0
-87/BLF		Indspec G1149A/G1131B	1/4" CAB Board		15	0
-87/BLF		Unbonded			40	10
-89/BGF		Indspec G1149A/G1131B	3/8"-3/4" FR Particleboard	-89/BLF	20	0
-89/BGF		Indspec G1149A/G1131B	1/4" CAB Board		15	0
-89/BGF		Unbonded			20	0

JSE AND CARE

'ORMICA® brand Fire-Rated Laminate may be cleaned vith a clean, non-abrasive, damp cotton cloth and a mild iquid detergent or household cleaner.

f in doubt about the suitability of a particular cleaner or detergent, check with its manufacturer.

Jse of abrasive cleaners, powders, scouring pads, steel wool, sandpaper, etc., can damage laminates and make them susceptible to staining.

Acid or alkaline-based cleaners, compounds, etc., will mar, etch, corrode, and permanently discolor laminates. Never use these on laminates nor allow bottles, rags, etc., contaminated with these to contact laminate surfaces. Accidental spills or splatters from these harsh materials should be wiped off immediately, and the area rinsed thoroughly with water. Examples of these are:

drain cleaners
coffee pot cleaners
ceramic cook top cleaners
chlorine bleach
some "countertop cleaners"
rust removers
metal cleaners
tub and tile cleaners
oven cleaners
toilet bowl cleaners

LIMITED WARRANTY

Formica Corporation expressly warrants that for a period of one (1) year from the date of first sale, these products will be reasonably free of defects in materials and workmanship, and that when properly handled and fabricated, they will conform, within accepted tolerances, to applicable manufacturing specifications. Due to the variety of uses and applications to which these products may be put, FORMJCA CORPORATION CAN MAKE NO WARRANTY THAT THESE PRODUCTS ARE SUITABLE FOR ANY PARTICULAR PURPOSE AND CAN MAKE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, OTHER THAN THOSE SET FORTH ABOVE.

Buyer's exclusive remedy for any loss or claim resulting from the use or inability to use these products shall be replacement of the defective product, or at Formica Corporation's option, return of the product and refund of the purchase price. IN NO EVENT SHALL FORMICA CORPORATION BE LIABLE IN EITHER TORT, CONTRACT, OR OTHERWISE FOR ANY LOSS OR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES.

Any information or suggestion concerning applications, specifications, or compliances with codes and standards is provided solely for your convenient reference and without any representation as to accuracy or suitability. The user must verify and test the suitability of any information or products for his specific application.

TECHNICAL SERVICES

Formica Corporation has trained representatives in sales offices throughout the country. To assist these representatives, the company maintains a sales technical services staff in Cincinnati, Ohio. For technical assistance, contact your sales representative, write the company directly, or call (513) 786-3048, Fax (513) 786-3195.

MANUFACTURER

FORMICA CORPORATION
U.S. Operations
10155 Reading Road
Cincinnati, OH 45241-5279
(513) 786-3400

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Fax: 215-441-8071

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Dallas, TX 75247
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Fax: 214-630-1228

NORTHEAST
FORMICA CORPORATION
190 North Main
Natick, MA 02181
Phone: 508-650-9722
Fax: 508-650-1468

MIDWEST
FORMICA CORPORATION
1400 East Touhy Avenue
Suite 430
Des Plaines, IL 60018-3305
Phone: 708-390-9500
Fax: 708-390-9507

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FORMICA CORPORATION
70 Mansell Court
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Roswell, GA 30076
Phone: 404-642-0713
Fax: 404-587-1600

EASTERN
FORMICA CORPORATION
One Stanford Road
P.O. Box 338
Piscataway, NJ 08854
Phone: 201-469-1555
Fax: 201-469-5917

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FORMICA CORPORATION
Avenue Simon Madera
LOTE 19
Villa Padres Box 29288
65th Infantry Station
Rio Piedras, PR 00929
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Fax: 809-764-8730

FLORIDA
FORMICA CORPORATION
7482 President Drive
Orlando, FL 32809
Phone: 407-856-7690
Fax: 407-856-9258

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Printed in U.S.A.

SEP-25-1991 22:02 FROM FORMICA EVENDALE TO 7212[illegible]749 P.005/005

UNDERWRITERS LABORATORIES INC.®

TESTING FOR PUBLIC SAFETY

BUILDING MATERIALS DIRECTORY

1989

Contains
Listings and Classifications
in effect as of December 16, 1988

NOTE: Special attention is directed to the information contained in the

Laminated Plastic (BSMV)

Laminated plastic consisting of layers of resin-impregnated papers bonded under heat and pressure to form decorative or non-decorative sheets, are Classified as to surface burning characteristics as indicated in the following individual Classifications. These materials are tested unbonded and *bonded to uncoated, high density (nominal 110 pcf), 1/4 in. thick inorganic reinforced cement board* with recommended adhesive(s) in accordance with instructions accompanying the product or adhesive(s). Laminated plastic may also be evaluated on other surfaces or substrates, as indicated in the individual Classifications.

The testing of bonded laminated plastic may affect the contribution of combustibles under fire conditions. This effect is determined by testing the sample with a longitudinal butt joint, constructed by skiving the laminate or *by using a factory or field joint (if applicable)*.

The Classifications are confined to the materials themselves and do not pertain to the structures in which the materials may be installed.

Washability, light reflectivity, durability, toxicity of the products of combustion and other properties have not been investigated.

Authorities having jurisdiction should be consulted before installation.

The basic standard used to investigate products in this category is UL 723, "Test for Surface Burning Characteristics of Building Materials".

LOOK FOR CLASSIFICATION MARKING ON PRODUCT

The Classification Marking of Underwriters Laboratories Inc. (shown below) on the product or package of products is the only method provided by Underwriters Laboratories Inc. to identify Laminated Plastics produced under its Classification and Follow-up Service. See General Information Card of above guide designation.

UNDERWRITERS LABORATORIES INC
CLASSIFIED
LAMINATED PLASTIC
SURFACE BURNING CHARACTERISTICS

+—The Classification Marking also includes *the flame spread and smoke developed values* applicable to the product.

FOR SURFACE BURNING CHARACTERISTICS, SEE CLASSIFICATION MARKING OF UNDERWRITERS LABORATORIES INC. ON PRODUCT OR CARTON.

LOOK FOR MARK ON PRODUCT

FORMICA CORP, CINCINNATI OH 45241 — R4540 (N)

Grade 32

	Unbonded	Bonded - to Inorganic Reinforced Cement Board
Flame spread	35	15
Smoke developed	40-65	10

	Bonded - to Wood Particle Board‡	Bonded - to Treated Plywood‡ #
Flame spread	20	20
Smoke developed	10	100

Grade 87

	Unbonded	Bonded - to Inorganic Reinforced Cement Board	Bonded - to Wood Particle Board‡
Flame spread	40	15	25
Smoke developed	10	0	0

Grade 50

	Unbonded	Bonded - to Inorganic Reinforced Cement Board	Bonded - to Wood Particle Board‡
Flame spread	25	15	20
Smoke developed	80	10	15

	Bonded - to Treated Plywood‡ #	Bonded - - to Treated Plywood‡ #
Flame spread	15	50
Smoke developed	105	155

Grade 89

	Unbonded	Bonded - to Inorganic Reinforced Cement Board	Bonded - to Wood Particle Board‡
Flame spread	20	15	20
Smoke developed	0	0	0

+Bonded with Koppers Pencolite G1124 or G1149-A/G1131-B adhesive in accordance with instructions accompanying the adhesive.

+ +—*Bonded with Formica 180 adhesive in accordance with instructions accompanying the adhesive.*

‡Nominal 3/8 in. thick or greater integrally treated wood particleboard bearing the Classification Marking of Underwriters Laboratories Inc. reading "Wood Particleboard" with Surface Burning Characteristics not in excess of 20 for flame spread and 25 for smoke developed.

WC-01

SOUTHWEST RESEARCH INSTITUTE

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF FIRE TECHNOLOGY

INVESTIGATION OF THE SURFACE BURNING CHARACTERISTICS OF A FABRIC BACKED VINYL WALLCOVERING: PATTERN LINATE (ASSOCIATED PATTERNS BOURGET, KASTRUP AND SHANNON)

SwRI PROJECT NO. 01-3104-309
FINAL REPORT
JUNE 28, 1990

Prepared for:

VESCOM B.V.
ST. JOZEFSTRAAT 20
P.O. BOX 70
5750 AB DEURNE, HOLLAND

By:

Carl A. Hafer

Carl A. Hafer, P.E.
Manager
Fire Testing Services

Approved by:

Alex B. Wenzel

Alex B. Wenzel, Director
Department of Fire Technology
for
Dr. Robert E. Lyle, Vice President
Chemistry and Chemical Engineering

This report is for the information of the Client. It may be used in its entirety for the purpose of securing product acceptance from duly constituted approval authorities. Neither this report nor the name of the Institute shall be used in publicity or advertising.

INTRODUCTION

This report presents the results of ASTM E84 flame spread tunnel tests on material submitted by the Client. It contains a description of the materials tested, the preparation and conditioning of the specimens, the test procedure, and finally, the test results.

Materials are tested under ASTM E84-89a, "Standard Method of Test for Surface Burning Characteristics of Building Materials." This test method is similar to the test method specified in NFPA No. 255, UL No. 723 and UBC No. 42-1. ASTM E84 is a test procedure method only and does not set requirements for materials. Therefore, SwRI does not assign a classification to the material tested. Building codes, such as the Uniform Building Code, have requirements dependent on the building type, occupancy, etc. The building code having jurisdiction in the location a material is to be used will determine compliance of the test results. The actual test specification followed, including the appropriated revision, is indicated on the individual summary pages.

The results apply specifically to the specimens tested, in the manner tested, and not to the entire production of these or similar materials, nor to the performance when used in combination with other materials. All test data are on file and are available for review by authorized persons.

The purpose of the test is to evaluate performance of the test specimens in relation to that of glass-reinforced cement board and red oak flooring under similar fire exposure. The results are expressed in terms of flame spread, smoke developed and temperature during a 10-minute exposure and are recorded as a ratio with glass-reinforced cement board 0 and red oak flooring 100.

The following pages represent a summary of the information obtained during the evaluation of the submitted material. **These summary pages and graphs are not to be used separately, in lieu of this complete final report.**

DESCRIPTION AND PREPARATION OF MATERIALS

Each material submitted for evaluation is reported separately. The description of the tested sample, cure time and test date are listed in the Description section of the appropriate summary page.

Each 21-in. x 25-ft (0.53 x 7.63-m) specimen is prepared in accordance with standard procedures and the Client's instructions. Exceptions to the standard procedure are noted in the Description section on the summary page.

The specimens are conditioned in an atmosphere maintained between 68 and 78°F (20 and 26°C) temperature and 45- to 55-percent relative humidity.

TEST PROCEDURE

Reference data are obtained and furnace operation checked by conducting a 10-minute test with glass-reinforced cement board on the day of the test and by periodic tests with red oak flooring. These tests provide the 0 and 100 references for flame spread and smoke developed. Ignition over the burners was noted 41 seconds after the start of the test in the most recent calibration with red oak flooring. Each specimen to be evaluated is tested in accordance with the standard procedure.

TEST RESULTS

The test results are calculated on the basis of observed flame travel and the measurement of areas under the recorder curves of

furnace temperature and smoke developed. To allow for possible variations in results due to limitations of the test method, the numerical results are adjusted to the nearest figure divisible by 5. Results for each test are presented in the appropriate summary page.

OBSERVATIONS DURING AND AFTER TESTS

The observations made during and after each test are presented on the summary page.

GRAPHICAL DATA

Recorded data for flame spread, smoke developed and temperature for each specimen are shown in the figures following the summary page as a solid line on each graph.

ASSOCIATED PATTERNS

Associated patterns, where applicable, are considered from the standpoint of variation in colorway, fiber content, unit weight and thickness. Based upon past experience with similar wallcovering material, flame spread and smoke developed values should not vary appreciably from those given by the tested sample. When included, the Client stated that the wallcovering tested is representative of the qualities listed.

UBC 4202.A DELAMINATION TEST

When required, two specimens, consisting of 12 x 12-in. (0.31 x 0.31-m) sections of wallcovering bonded to 0.25-in. (6.35-mm) glass-reinforced cement board with designated adhesive, are prepared from the submitted material. The specimens are conditioned at 70 5°F and 45 5-percent relative humidity for a minimum of 2 days. One specimen is placed horizontally, the other vertically, in a laboratory oven at 300°F for 25 minutes. The specimens are then

removed and examined. Observations made at this time cannot display any evidence of detachment during the exposure period. The results of the UBC 4202.A Delamination or Peel-Off Test are recorded as passed or failed on the following summary pages. This test is applicable only to wallcoverings which are 0.036 in. (0.914 mm) or more in thickness.

DESCRIPTION

Company:	Vescom B.V.			
Date Received:	06/05/90			
Identification:	28184 Linate			
Description:	Embossed vinyl wallcovering with a cheesecloth back			
Color:	Off-white/light gray			
Amount Received:	1 roll(s)			
Width:	51.125	in.	(1.299	m)
Length:	381.0	in.	(9.677	m)
Nominal Thickness:	0.042	in.	(1.067	mm)
Total Weight:	23.2	lb	(10.533	kg)
Nominal Unit Weight:	25.8	oz/sq.yd	(0.875	kg/sq.m)

PREPARATION AND CONDITIONING

Substrate Used:	0.25-in. (6.35-mm) glass-reinforced cement board
Adhesive Used:	Shur-Stik 111
Date In Lab:	06/06/90
Conditioning:	21 days, 70°F and 50% relative humidity
Preparation:	Four 21 x 75-in. (0.53 x 1.91-m) pieces were cut from the roll submitted by the Client. Each piece was backcoated with designated adhesive and applied to equivalent-sized sections of primed 0.25-in. (6.35-mm) glass-reinforced cement board. All wrinkles and air pockets were removed with a roller to assure a firm bond.

TEST RESULTS

Test Date:	06/27/90
Test Time:	16:53:53
Flame Spread Index:	15
Smoke Developed Index:	155
UBC 4202.A Delamination Results:	Passed
Associated Patterns:	Bourget, Kastrup and Shannon

OBSERVATIONS DURING TEST

Color Change, min:s	0:21		
Spotty Ignition, min:s	0:46		
Steady Ignition, min:s	1:10		
Cracks, min:s	1:25		
Peeling, min:s	1:50		
Dripping, min:s	1:48		
Pieces Falling, min:s	1:55		
Burning on Floor, min:s	2:17		
Burning on Floor Out, min:s	5:42		
Maximum Flame Front Position, min:s	2:15		
	9.00	ft	(2.74 m)
Afterflame Top, min:s	0:06		

SwRI Project No. 01-3104-309

OBSERVATIONS AFTER TEST

Consumed/Complete Char To	6.50	ft	(1.983	m)
Blisters Without Char To	24.0	ft	(7.320	m)
Blisters With Char To	14.0	ft	(4.270	m)
Surface Char To	14.0	ft	(4.270	m)
Severe Char To	8.00	ft	(2.440	m)
Discoloration To	25.0	ft	(7.625	m)

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Julian Kau, General Manager,
Planning, Design & Construction, WT&EDD
From: Ennala Ramabhushanam
Date: August 30, 1991
Subject: **WTC - ALTERATION APPLICATION W-4636 - CEDEL, S.A. - 1 WTC - 90TH FLOOR - GENERAL CONSTRUCTION**

Reference: Review Request dated 8/19/91

Copy To: J. Costa, G. Gaeta, L. Menno, R. Wegel, Job Folder, Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation of approval to proceed with construction remains unchanged subject to the submission of the items listed below being revised in accordance with the two (2) requirements listed on the attached rider.

Drawing: Test Reports:

REMARKS: 1) This memorandum was transmitted to the Facility via OA on August 30, 1991.

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

KG/dm
att.

RIDER

ALTERATION APPLICATION W-4636

ARCHITECTURAL

1. Dwg. A-5, Finish Plan. The response to comment 2 is noted. Please submit clear and readable documentation for interior finishes such as WC/01 P1/01, PL/02 as specified, indicating that they are in compliance with all the requirements of N.Y.C. Building Code Section C26-504.10 regarding flame spread ratings, smoke-developed ratings, and toxicity. The documentation shall show the model numbers, manufacturers' name and shall be obtained from independent registered laboratories. (Repeat comment)

STRUCTURAL

2. Response to comment 3 regarding ceiling suspension details is noted. Please note that the drawing submitted must be included in the contract drawings and should carry, the seal and signature of the engineer ~~if~~ or architect of record, in accordance with N.Y.C. Building Code C27-157.

   Dwg. A-9, Section 6. For metal studs supporting the suspended "ceiling fixture", please indicate the connection details to the existing construction and submit for review. Please note that PA Standard Dwg. S-1 does not include such a detail as stated in your response. (Modified repeat comment)

083091

TENANT ALTERATION REVIEW REQUEST
World Trade and Economic Developement

No. Routing Loc.	Applicant's Name: CEDEL, S.A.	Facility: WORLD TRADE CENTER
QUALITY ASSURANCE 51W ✓ P.Cooper W/1	T.A.A. No: 4636	Dwg.No(s). ✓ See attached
IN HOUSE 36S ___ R.Becker W/1 ___ V.Levinson W/1 ___ Sen Pu Chiao W/1	Contract No: 591.970 Location: 1 WTC/90 fl Date: 8-19-91	
WT&EDD CONSTR. 36N ___ P.Cavanagh W/1	[ ] SPECIAL INSTRUCTIONS:	
OPERATIONS B2 RM.211 ___ T.Cancelliere W/1	Originating Unit: 829	Proj.Mgr: John P.Vinciguerra Extn: 435 - 2960 36W
RISK MANAGEMENT Z57 __S.Altman PATC 3FL W/1 __G.Sepie PATC 2FL __	Please return no later than: 9-3-91 **Supervisor: Gerard Gaeta Extn. 435-2057 36W**	
ASBESTOS 36N ___ F.Boyce W/1	Submission: 1st [ ] 2nd [ ] 3rd [ ] 4th [ ] 5th [ ] 6th [✓] other [ ] Construction cost: $ 200,000	

Description of work:

[✓] General construction: [ ] Construction limited to: W-4636 (6)

[ ] Minor work including:

[✓] Architectural [ ] Electrical [ ] Plumbing [ ]
[✓] Structural [ ] HVAC [ ] Sprinkler [ ]
[ ] Other: _____

Office copy

RECEIVED
ALTERATIONS APPLICATION
TENANT CONSTRUCTION REVIEW UNIT

Attached are:

[ ] BS&A / MEA resolutions [ ] Laboratory test reports for carpeting
[ ] Catalog cuts [ ] Samples [ ] _____
[ ] Consultants' responses to Port Authority review comments

Remarks: _____

cc: G. Daly, G. Gaeta, E. Monteverde, T. Rush, J. Uryini, R. Wegel, G. Wenger, J.P. Vinciguerra, T. Lynch (Rentals Rep.)

Signature: Gerard Gaeta Date: 8/19/91
(For) **Louis Menno, Manager**
Contract and Tenant Services Division
World Trade and Economic Developement

jpv 05/21/91

August 13, 1991

Mr. Gerard Gaeta R.A.
Port Authority
Approvals & Construction
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
One World Trade Center - 90th Floor
d/D Project #1150

Dear Mr. Gaeta:

Attached are the documentation required to comply with your offices objections as stated in your letter to Mr. Philip Humbert on July 3, 1991. The following is our written response to each objection.

Architectural

1. A copy of the BS&A number is attached;
2. The documentation for WC-019, PL-01 and PL/02 are attached. VT-01 was accepted by Mr. Gupta of your office on the basis of documentation previously submitted.

Structural

1. Items 3 & 4 are responded to on the enclosed d/D drawing dated 7.18.91.

Please call me if you have any questions.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

Frank Loffredo
Principal

FL:dd
enc.

cc: John Vincequera
David Hesier
Mario Pesa
Steven Brooks

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV.
DESIGN STANDARDS
office copy W-4636 (6)
AUG 19 1991
RECEIVED
ALTERATIONS APPLICATION
TENANT CONSTRUCTION REVIEW UNIT

dePOLO/DUNBAR INCORPORATED 330 WEST 42 STREET NEW YORK NY 10036 TELEPHONE 212-947-6645

D-BLAZE

PL 01,02

JUN. 24 1991

Fire Retardant For Wood

THE CENTRE COMPANIES
Wholesale Distributors
65-66 Traffic Street
Ridgewood, N.Y. 11385
N.Y. State: 718-360-0690 Outside N.Y. State: 800-221-0114

RECEIVED
JUN 25 1991
C.P. CONSTRUCTION CORP.

D-Blaze Fire-Retardant Treated Wood—the new generation building material

D-Blaze Fire-Retardant-Treated (FRT) wood is a new-generation construction material for weather protected applications. Its extremely low hygroscopic and corrosive properties make it a superior choice for use wherever FRT wood is required.

D-Blaze FRT wood is paintable, stainable, non-blooming and colorless. It qualifies for use in accordance with all major building codes and insurance rating bureaus.

Wood treated with D-Blaze is strong, easy to handle and workable with common tools. In most cases, FRT wood systems have lower in-place costs than other noncombustible-classified materials.

UL classified

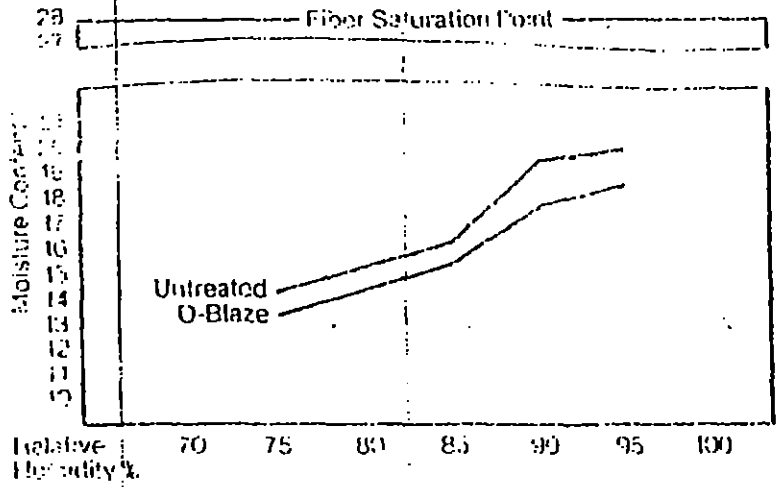
D-Blaze FRT wood has been thoroughly tested by Underwriters Laboratories of Northbrook, Illinois, and has been awarded the UL classification of "FRS," which signifies a 25 or less rating for flame spread, smoke development and fuel contributed. When tested for 30 minutes' duration there was no evidence of significant progressive combustion. Each piece of treated material bears an easily identifiable UL stamp or label.

Hygroscopicity

Wood treated with this new, scientific formulation solves many of the problems encountered with earlier-generation fire-retardant formulas, notably hygroscopicity. D-Blaze treated wood remains non-hygroscopic even under conditions of up to 95% relative humidity.

It meets or exceeds the hygroscopic requirements of AWPA C-20, C-27 Type A. In tests conducted in accordance with ASTM D-3201 at relative humidity up to 95%, it has virtually the same moisture content as untreated wood.

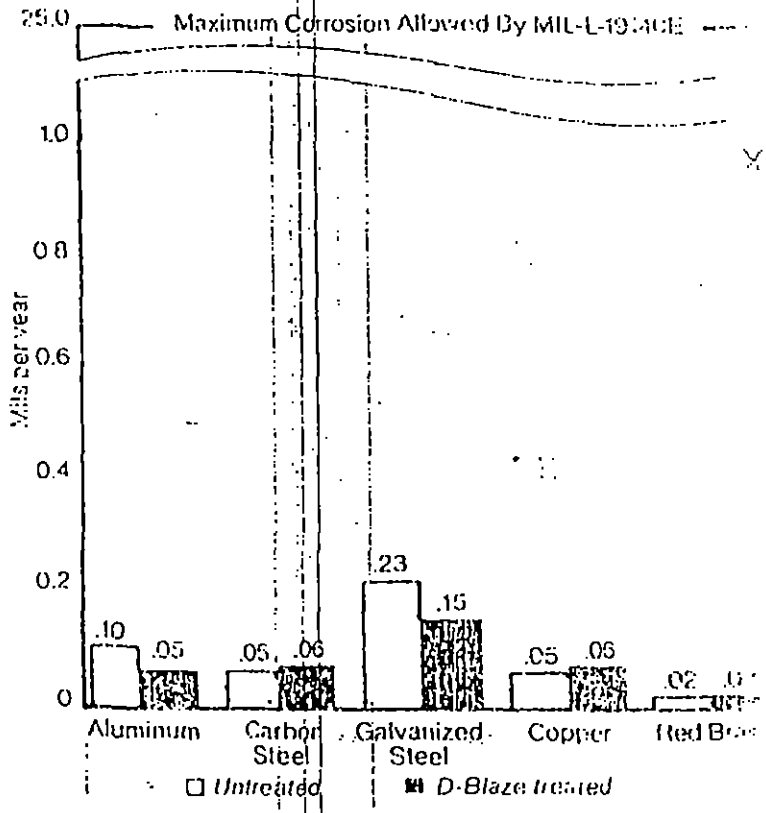
D-Blaze Hygroscopic Test Data



Corrosion protection

D-Blaze treated wood protects against corrosion on galvanized-steel truss plates as well as other metal fasteners. Extensive testing has shown that D-Blaze treated wood maintains metal finish and integrity virtually as well as untreated wood exposed to the same environment.

D-Blaze Corrosion Test Results



(Data are mean averages of Southern Yellow Pine test samples.)

The results shown are of tests conducted in accordance with MIL-L-19140E. Metal coupons were sandwiched between blocks of D-Blaze FRT wood, then placed in a humidity chamber for ten days at 120°F and 90% R.H. The copper and galvanized steel samples were cleaned per ASTM-G1-72.

The metal coupons in contact with D-Blaze treated wood showed very low levels of corrosion—less than 1% of what specifications allow—and approximately the same levels recorded for untreated wood.

Strength

D-Blaze has been tested by an independent laboratory in accordance with the National Forest Products Association Policy on Design Values for Fire Retardant Treated Lumber Protocol. It has been found to meet or exceed the minimum design stress values. Consult the "D-Blaze Strength Properties Data Sheet" for further details.

JUN. 24 1995

Approvals and tests

aze FRT wood meets or exceeds the guidelines for
ng construction materials as set forth and/or established
e following:

S. Bureau of Ships—OPL
ilitary Specifications MIL-L-19140E
ternational Conference of Building Officials (ICBO)
uilding Officials and Code Administrators Intl., Inc.
(BOCA)
outhern Building Code Conference Intl. (SBCC)
ew York City Building Code MEA Numbers 123-85 and
124-85
l other major building codes

surance Rating Bureaus
STM E-84

L-255
ational Fire Protection Association-255
merican Wood Preservers Association C20, C27 Type A
ational Forest Products Association's "Policy on Design
Values for Fire-Retardant-Treated Lumber."

A variety of applications

aze FRT wood is highly versatile. It can be used in a vari-
of interior environments where humidity is not expected
xceed 95% for prolonged periods and where the wood is
exposed directly to weat

commended and typical uses:

- roof trusses
- roof decks and sheathing
- beams and purlins

- floor trusses
- subflooring
- joists

- interior nonload-bearing partitions
- exterior load-bearing partitions
- studs

- architectural millwork and trim
- blocking and furring
- paneling

ote: Consult local building codes to determine the specific
as allowed.)

Finishing made simple

-Blaze is a clear treatment that will not darken or discolor
ost woods. During the treating process, D-Blaze is impreg-
ated deeply into the wood, thus leaving wood surfaces
harmed and ready for finishing. Light sanding or brushing
ay be all that is necessary to assure proper surface condition
r optimum paint or stain adhesion. Surfaces must be dry
d clean before applying. For best results, application
ould follow manufacturer's recommendations

Underwriters Laboratories Listing for D-Blaze FRT Wood

All of the following carry the UL "FRS" rating:

Lumber

Southern Yellow Pine	Red Spruce
Ponderosa Pine	Black Spruce
Red Pine	Englemann Spruce
Douglas Fir	White Spruce
Western Hemlock	Alpine Fir
White Fir	Balsam Fir
Hem-Fir	Lodgepole Pine
Jack Pine	Spruce-Pine-Fir (SPF)

Plywood

Southern Yellow Pine
Douglas Fir
Red Pine
(Lauan) Fire Retardant Lauan core w/ Birch

Hardwood Lumber

Basswood
Red Oak

From time to time, additional species will be tested. Check with your supplier if the species desired are not shown.

How to specify FRT (interior use)

Lumber and plywood shall be pressure-treated with D-Blaze fire-retardant chemicals to meet the Underwriters Laboratories FRS rating denoting a surface-burning characteristic rating of 25 or less for flame spread and smoke developed in a test of 30 minutes' duration.

Each piece of FRT lumber or plywood shall bear the Underwriters Laboratories label or stamp attesting to the FRS rating, and to the fact that it also meets the AWPA Standard C20 and C27 for Type A use.

All FRT lumber and plywood shall be kiln-dried to a maximum moisture content of 19% and 15% or less, respectively (The designer may wish to specify a lower moisture content for cabinet and millwork.) The fire-retardant chemicals used shall be halogen and sulfate-free.

For further information, contact your local supplier or call CSI toll-free: 800-421-8661.

Use and handling precautions

- Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask.
- When power-sawing or machining, wear goggles to protect eyes from flying particles.

JAN 24 1981

[illegible] COMPANIES
[illegible] 800-221-0114 [illegible]

SPEC-DATA

5-A

This Spec-Data Sheet conforms to editorial style prescribed by The Construction Specifications Institute. The manufacturer is responsible for technical accuracy.

WARNING: Particleboard and medium density fiberboard are manufactured with urea-formaldehyde resin and may release formaldehyde in low concentrations. Formaldehyde can cause temporary eye and respiratory irritation and may aggravate respiratory conditions or allergies. Proper ventilation will reduce the risk of such problems.

Willamette Industries, Inc.
Duraflake Division
May, 1984
(supersedes February, 1983)

fire-rated particleboard

1. PRODUCT NAME

Fire-rated Particleboard Duraflake FR

2. MANUFACTURER

Duraflake Division
Willamette Industries, Inc.
Building Materials Group
P.O. Box 428
Albany, Oregon 97321
Phone: (503) 928-3341

3. PRODUCT DESCRIPTION

Basic Use: Duraflake FR is a Class 1 rated fire retardant particleboard, suitable for a variety of industrial and commercial building applications where stringent building codes and fire safety requirements are a factor. It is used as a substrate for wood veneers, high and low pressure laminates and wall panel systems, as well as furniture and fixtures. It can be drilled, routed, [illegible], beveled and precision machined.

Limitations: Duraflake FR should be specified for interior use only.

Composition and Materials: Duraflake FR is made from selected West Coast specie wood particles and highly effective fire retardant chemicals bonded with special formulas of resins and waxes under the Bahre-Bison method of controlled heat and pressure. Coarse particles in the center give Duraflake FR its strength. Fine particles on the outer surface result in uniform smoothness.

Grades: Industrial Grade.

Sizes: [illegible] Widths: 36", 40", 48", 54"
Thicknesses: [illegible]" to 1¼"
Lengths: 180" to 218"

Finishes: Duraflake FR is available raw, filled, primed or color coated.

Colors: Specify Duraflake FR base coated in many colors.

Applicable Standards: ASTM E-84 tunnel test. Material and Equipment Acceptance Division, New York City ASTM C236, Guarded Hot Box test.

4. TECHNICAL DATA

Underwriters' Laboratories, Inc. Classified Wood Particleboard.

Surface Burning Characteristics
(Based on 100 for untreated red oak)

Flame Spread	20
Smoke Developed	25

See UL Classified Building Materials Index.

Physical Properties of Duraflake FR

[illegible]	[illegible]	Duraflake FR [illegible]
Density (lbs./cu. ft.)	45.0	44.0
Modulus of Rupture	[illegible]	[illegible] 300 psi
Modulus of Elasticity	350,000 psi	275,000 psi
Internal Bond	[illegible]	[illegible] psi
Elongation	0.35%	0.5%
Screw Holding		
Face	[illegible]	250
Edge	[illegible]	175

Test results are available upon request.

*Thermal Conductivity (K) and Thermal Resistance (1/k = R)**

[illegible]	½"	¾"	[illegible]
K = 0.54	0.62	0.55	0.69
R = 1.85	1.61	1.82	1.45

*These values obtained, using ASTM C-236 "Thermal conductance & transmittance of built-up wall sections by means of the Guarded Hot Box" in test conducted by Northwest Testing Laboratories.

Chemical Properties: Available on request.

5. INSTALLATION

Preparatory Work: Store Duraflake FR in the normal manner inside the warehouse under low relative humidity conditions and allow to stabilize prior to use. Units can be stacked.

Methods: Laminating -- Duraflake FR exhibits a loss of some surface density compared to regular Duraflake. When applying cold press overlays, such as vinyl film or high pressure laminates, Duraflake FR first should be tested for glue spread and bond quality before commencing commercial production. As a general rule, higher spread rates are necessary. The chemicals used in Duraflake FR have exhibited no tendency to bleed through expensive face veneers.

Gluing -- With adequate glue spread, Duraflake FR has been bonded satisfactorily with urea glues, Casein, PVA and some [illegible] and contacts. With resorcinal glues, certain conditions are needed for best results due to the slightly acidic nature of the retardant chemicals, which tend to slow down cure rates.

Hot Pressing -- When hot pressing laminates on Duraflake FR, use the shortest cycle time allowable within the range specified by the laminate suppliers. Extended cycle times or excessive heat may induce blows. As is the case with most hot press operations, care must be taken to cool the panels to 140°F before stacking, to preclude heat degration.

Building Codes: UBC, Class One, ASTM-84, ASTM C-236, Material and Equipment Acceptance Division of New York City.

6. AVAILABILITY AND COSTS

Availability: Duraflake FR is sold through a nationwide network of distributors. To locate the one nearest you, call (503) 928-3341.

Costs: Current costs may be obtained by contacting your nearest distributor.

7. GUARANTEE

The Duraflake Division of Willamette Industries, Inc. warrants Duraflake FR to be free of manufacturing defect, both in material and workmanship. Duraflake FR will perform in accordance with the specifications and applications listed, when used according to directions herein. No other warranty or guarantee is made.

8. MAINTENANCE

None required for interior use when installed in conformance with manufacturer's instructions.

9. TECHNICAL SERVICES

For details concerning the technical aspects of Duraflake FR, dial (503) 928-3341.

10. FILING SYSTEMS

Spec Data II
Additional product information, full literature and technical assistance available on request.

The ten-part SpecData® format has been reproduced from publications copyrighted by CSI, 1964, 1965, 1966, 1967, and used by permission of The Construction Specifications Institute, Inc., Washington, D.C. 20036.

Particleboard and medium density fiberboard are manufactured with urea formaldehyde resin and may release formaldehyde in low concentrations. Formaldehyde can cause temporary eye and respiratory irritation and may aggravate respiratory conditions or allergies. Proper ventilation will reduce the risk of such problems.

FINISH CARPENTRY
fire-rated particleboard

SPECDATA

This SpecData sheet conforms to editorial style prescribed by The Construction Specifications Institute. The manufacturer is responsible for technical accuracy.

1. PRODUCT NAME

FORMICA® Brand Fire Rated Laminate

2. MANUFACTURER

Formica Corporation
Cincinnati, Ohio 45241

3. PRODUCT DESCRIPTION

Grade -50/HGF Decorative (.050")
Grade -32/VGF Decorative (.035")
Grade -89/BGF Backer (.050")
Grade -87/BLF Backer (.028")

Basic Use: FORMICA brand fire rated laminate is a decorative material designed for both horizontal or vertical applications where low flame spread ratings are required. Its heat resistance, good appearance, quality, durability, and resistance to stain make it ideal for interior applications. These non-forming grades carry the mark of Underwriters' Laboratories, Inc.

Horizontal surfaces include table tops, desks, store fixtures, and institutional furniture for schools, hospitals, and nursing homes.

Vertical surfaces include wall panels, elevator interiors, bulkhead sheathing for Naval and commercial vessels, toilet compartments, etc.

For additional application information, contact Formica Corporation Sales Technical Services.

Limitation: FORMICA brand fire rated laminate is not recommended for application directly to plaster, gypsum board, or concrete. It should not be used in areas exposed to temperatures exceeding 275°F or for exterior applications.

To achieve the fire ratings published in Table 1, panel assemblies must be fabricated using the components listed.

For details concerning the use of contact adhesives with Grade -50/HGF on wood or metal substrates, refer to the Building Products Form 84-004 or Shipbuilding Form 84-005 fabrication data sheets. These are available upon request from the Sales Technical Services Department.

Panel assemblies using Grade -32/VGF should not exceed 24" in width. Grade -32/VGF is not recommended for use with contact adhesive.

Finished panel widths using Grade -50/HGF laminate bonded with contact adhesive should not exceed 24 inches.

Composition: Decorative and translucent (optional) papers are impregnated with melamine resin and pressed (consolidated) at pressures exceeding 1000 psi over several layers of kraft core sheets impregnated with phenolic resins containing a highly effective fire retardant chemical that inhibits combustion. The laminate back is sanded for bonding purposes.

Sizes: (Nominal, inches)
36 x 96, 36 x 120, 48 x 96, 48 x 120 and: 60 x 144.

Actual sizes are greater than nominal size to obtain a rectangle of the nominal size specified.

Colors and Patterns: COLOR + COLOR—a complete selection of solid color families to meet contemporary design needs.

Patterns and Woodgrains—a broad selection of natural woodgrains, abstracts, leathers,

TABLE 1

PERFORMANCE PROPERTIES
NEMA STANDARDS PUBLICATION NO. LD 3-1985

Physical Properties	LD 3 Test	NEMA Values
FORMICA brand laminate Horizontal Fire Rated Grade -50/HGF NEMA Type FR 50		
Nominal Thickness-inches	n/a	.050
Wear Resistance-cycles (min.)	3.1	400
Scuff Resistance-rating (min.)	3.2	NE
Impact Resistance-inches (min.)	3.3	45
Dimension Change % MD (max.)	3.4	.5
% CD (max.)		.9
Boiling Water Resistance-rating (min.)	3.5	NE
High Temperature Resistance-rating (min.)	3.6	SL
Radiant Heat Resistance-rating (min.)	3.7	75
Stain Resistance		
Reagents 1-23 rating (min.)	3.9	NE
Reagents 24-29 rating (min.)		M
Light Resistance-rating (min.)	3.10	SL
Appearance-for defects	3.11	No ABC
Cleanability-cycles (max.)	3.12	25

FORMICA Fire Rated Laminate Sheet
May 1988
(Supersedes August 1985)

marbles, and others. FORMICA brand fire rated laminate is not available in #840 Lab Black, metallics, COLORCORE® brand surfacing material, or DESIGN CONCEPTS® collection.

Samples and/or paper swatches are available from Formica Corporation specification representatives or direct from Formica Corporation. Call (800) 524-0159 for "Zip-Chip" service. In New Jersey: (800) 624-1914.

Finishes: FORMICA brand fire rated laminate is available in the following finishes --

Matte (-58): Like suede, imparts a soft, warm and pleasing effect that enhances the beauty of color. Matte finish produces greater clarity and depth resulting in a true and vibrant color translation.

Suede (-65): A minutely-grained texture with low light reflective value, for both horizontal and vertical surfaces. Suede finish imparts a soft, warm and very pleasing effect that enhances the beauty of color and design without obscuring or "fuzzing" its detail.

4. TECHNICAL DATA

Applicable Standards: FORMICA brand fire rated laminate meets or exceeds laminate performance requirements of NEMA Publication No. LD3-1985 for Types FR 50 and FR 32 as shown in Table 1 and Table 2, respectively. Meets Motor Vehicle Safety Standard No. 302 covering flammability of interior materials for passenger cars, multi-purpose passenger vehicles, trucks and buses. Grade -50/HGF complies with Military Standard MIL-STD-1623D (SH) and Military Specification MIL-P-17171D (SH) for military ships and meets requirements of U.S. Coast Guard Specification Subpart 164.012 for interior finishes for merchant vessels. Both Grades -32/VGF and -50/HGF comply with Federal Aviation Regulation 25.853 (a and b) for interior finishes for passenger category aircraft. Meets requirements of Housing and Urban Development Federal Regulation, Part II, 280.203(a) for mobile homes and fabricated housing. All grades are classified by Underwriters' Laboratories, Inc., File R4540, and carry labels specifying fire ratings in accordance with data developed by test method UL 723/ASTM E84 (Tables 3 and 4).

5. INSTALLATION

Storage: Laminate should be stored horizontally with the top sheet turned face down and a caul board placed on top to protect the material from possible damage and reduce the chance of warpage of the top sheets. Laminate should be protected from moisture and should never be stored in contact with the floor or outside wall.

Preconditioning: Prior to fabrication, allow the laminate and substrate to acclimate for at least 48 hours at the same ambient conditions. Optimum conditions are approximately 75°F and 45 to 55% relative humidity.

Substrates and Adhesives: To obtain the classifications listed in Table 3, FORMICA brand fire rated laminate must be bonded to Dura-

TABLE 2

PERFORMANCE PROPERTIES
NEMA STANDARDS PUBLICATION NO. LD 3-1985

Physical Properties	LD 3 Test	NEMA Values
FORMICA brand laminate Vertical Fire Rated Grade -32/VGF NEMA Type FR 32		
Nominal Thickness-inches	n/a	.032
Wear Resistance-cycles (min.)	3.1	300
Scuff Resistance-rating (min.)	3.2	NE
Impact Resistance-inches (min.)	3.3	20
Dimension Change % MD (max.)	3.4	.7
% CD (max.)		1.2
Boiling Water Resistance-rating (min.)	3.5	NE
High Temperature Resistance-rating (min.)	3.6	SL
Radiant Heat Resistance-rating (min.)	3.7	50
Stain Resistance		
Reagents 1-23 rating (min.)	3.9	NE
Reagents 24-29 rating (min.)		M
Light Resistance-rating (min.)	3.10	SL
Appearance-for defects	3.11	No ABC
Cleanability-cycles (max.)	3.12	25

TABLE 3

CLASS 1 FIRE RATED PANEL ASSEMBLIES
UNDERWRITERS LABORATORIES CLASSIFIED
UL 723 (ASTM E-84)

Grade	NEMA Grade	Substrate (5/8" Thick or Greater)	Flame Spread	Smoke Developed
-50/HGF	FR 50	FR Particleboard*	20	15
-32/VGF	FR 32	FR Particleboard*	20	10
[illegible]	—	FR Particleboard*	20	0
[illegible]	—	FR Particleboard*	20	0
		([illegible] Thick or Greater)		
-50/HGF	FR 50	FR Plywood**	15	105
-32/VGF	FR 32	FR Plywood**	20	[illegible]

*UL rating of no more than 20 Flame Spread and 25 for Smoke Developed and bonded with Koppers [illegible] or [illegible] Adhesive.

**UL rating [illegible] and bonded with Koppers [illegible]

TABLE 4

FIRE RATED LAMINATE
UNDERWRITERS' LABORATORIES CLASSIFIED
UL 723 (ASTM E-84)

	Bonded to Asbestos Cement Board*		Unbonded	
Grade	Flame Spread	Smoke Developed	Flame Spread	Smoke Developed
50/HGF	15	10	27	80
32/VGF	15	10	15	40-85
89/BGF	15	0	20	0
87/BLF	15	0	40	10

*[illegible]

flake II: particleboard (Flame 20, Smoke 25) with Koppers Penacolite* G1149A/G1131B or G1124A/G1124B resorcinol adhesive according to the manufacturer's instructions.

Other adhesives and substrates may be used as described in the Fabrication Data Sheets for Building Products and Shipbuilding. However, when those assemblies are used in applications where a classification is required by Building Codes, Fire Classification testing of those assemblies will be required.

To assure uniform bonding, remove any efflorescence on the substrate or laminate by lightly sanding and thoroughly brushing. Substrates should be smooth, well sanded and uniform in thickness.

For more specific information, contact Formica Corporation's Sales Technical Services.

Assembly: Material, equipment, and workmanship should conform to the industry standard practices, conditions, procedures, and recommendations as specified by NEMA LD 3.1-1985, part 4, Architectural Woodwork Quality Standards, National Association of Plastic Fabricators, and ANSI 161.2-1979 standards.

For optimum panel flatness and balancing, fire rated panel assemblies should be laminated with the appropriate Grade 89/BGF or Grade 87/BLF backing sheet. All inside corners of cutouts must be radiused as large as possible (⅛ inch minimum) and edges filed smooth and free from cracks and crazes to avoid stress cracking.

6. AVAILABILITY AND COST

Availability: FORMICA brand fire rated laminate is produced to order; allow about four weeks for delivery after receipt of order. It can be ordered nationally through a network of FORMICA brand product distributors and associate distributors. Formica Corporation regional warehouses support these stocks. Formica Corporation representatives are located in all major cities.

Cost: Variable according to type and quantity and locale. See your local Formica Corporation Distributor.

7. WARRANTY

Limited Warranty: Formica Corporation expressly warrants that for a period of one (1) year from the date of first sale of this product it will be reasonably free of defects in materials and workmanship and that when properly handled and fabricated it will conform, within accepted tolerances, to applicable manufacturing specifications. Due to the variety of uses and applications to which this product may be put, FORMICA CORPORATION CAN MAKE NO WARRANTY THAT THIS PRODUCT IS SUITABLE FOR ANY PARTICULAR PURPOSE AND CAN MAKE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, OTHER THAN THOSE SET FORTH ABOVE.

Buyer's exclusive remedy for any loss or claim resulting from the use or inability to use this product shall be replacement of the defective product, or, at Formica Corporation's option, return of the product and refund of the purchase price. IN NO EVENT SHALL FORMICA CORPORATION BE LIABLE IN EITHER TORT OR CONTRACT FOR ANY LOSS OR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES.

Information or suggestion concerning applications, specifications or compliances with codes and standards is provided solely for your convenient reference and without any representation as to accuracy or suitability. Formica Corporation disclaims any legal responsibility. The user must verify and test the suitability of any information or products for his specific applications.

8. MAINTENANCE

Surfaces of FORMICA brand laminate may be cleaned with a damp cloth or ordinary bar soap and water. Stubborn dirt, kitchen grease, fingerprints, etc., may be removed with general purpose household products. Before using any cleaner, consult with its manufacturer to make sure it will not damage decorative laminate surfaces. Abrasive cleaners or powders should not be used. These can damage the laminate surface and make it susceptible to staining.

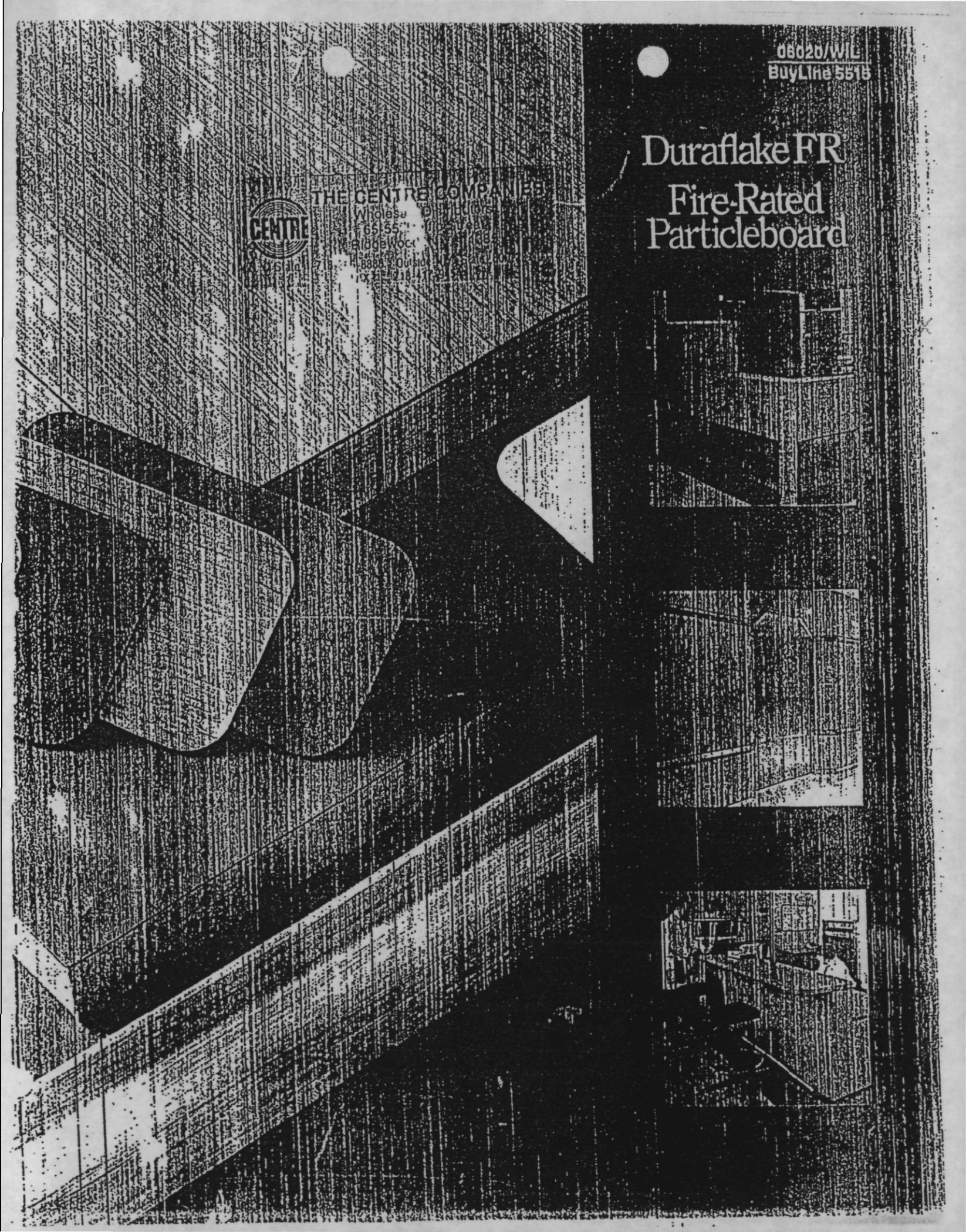
Do not use acid or alkaline based cleaners. These will mar, etch, corrode and/or permanently discolor the laminate surface. Many industrial strength cleaners and a growing number of household cleaners contain base chemicals and acids. Consumers, cleaning services, architects, designers, etc. are urged to consult the cleaner manufacturer to make sure the product will not damage decorative laminate. Inadvertent spills from these should be wiped off immediately and the area rinsed thoroughly with water. For unusual problem areas, contact Formica Corporation Sales Technical Services.

9. TECHNICAL SERVICES

Formica Corporation has trained representatives in sales offices throughout the country. To assist these representatives, the company maintains a sales technical services staff in Cincinnati, Ohio. For technical assistance, contact your sales representative, write the company directly, or call (513) 786-3355.

10. FILING SYSTEMS

SPECDATA® II
Sweet's File—Architectural
Sweet's File—Industrial Construction


08020/WIL
BuyLine 5515
Duraflake FR
Fire-Rated
Particleboard
THE CENTRE COMPANIES
CENTRE

Willamette Industries, Inc. has a history of delivering quality wood products to its customers. It began manufacturing Duraflake® particleboard in 1959. Fire-retardant Duraflake FR particleboard was introduced in 1975.

Product Description

Basic Use: Duraflake FR is a Class I rated fire retardant particleboard, suitable for a variety of industrial and commercial building applications where stringent building codes and public safety requirements are a factor. It is used as a substrate for wood veneers, high and low pressure laminates and vinyls in wall systems, as well as furniture and fixtures. It can be drilled, routed, bullnosed, beveled and precision-machined

Limitations: Duraflake FR should be specified for interior use only.

Composition and Materials: Duraflake FR is made from western softwood particles and highly effective fire retardant chemicals bonded with special formulas of resins and waxes.

Grades: Industrial Grade

Production Capabilities

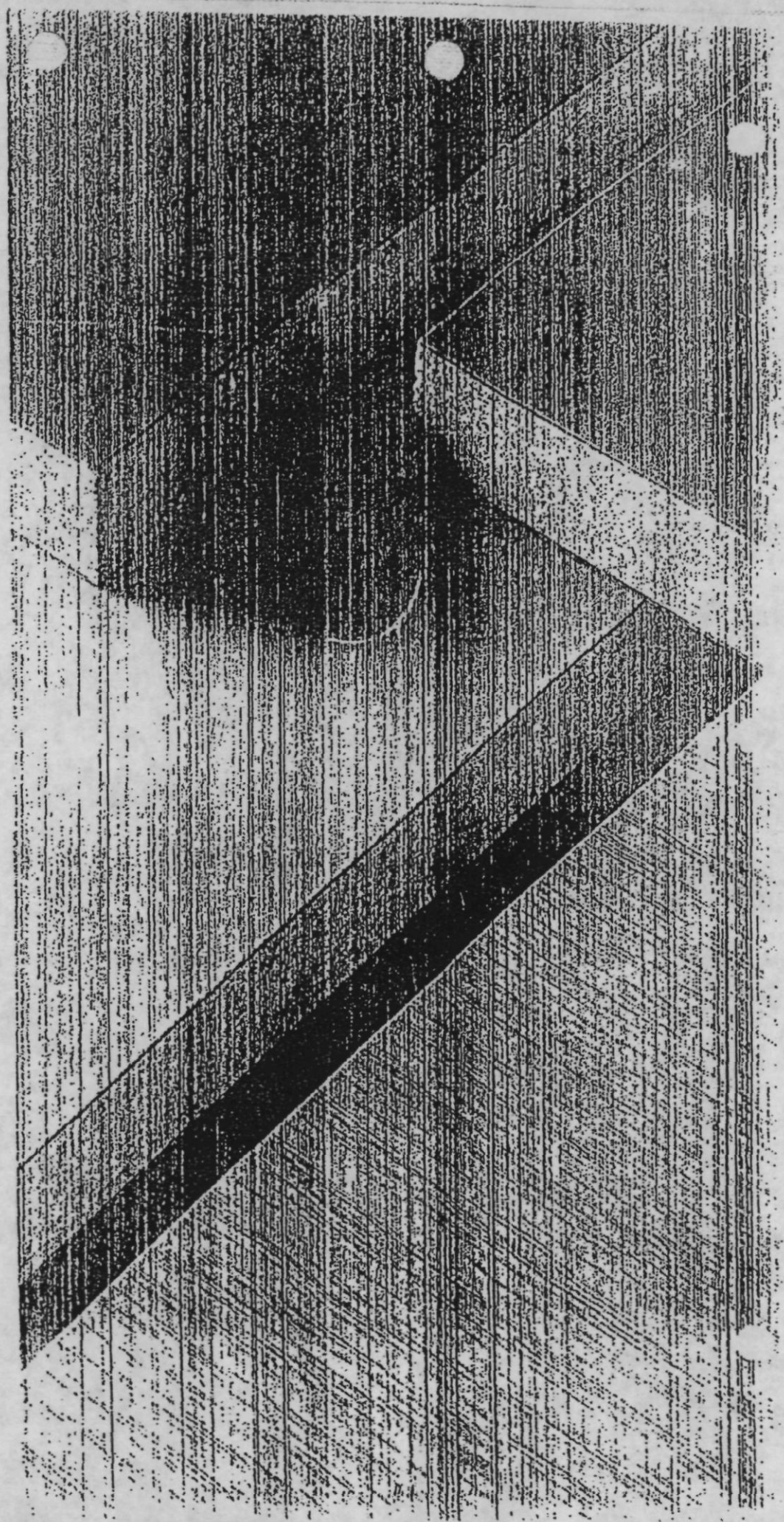
	Press Size (Inches*) Maximum	Minimum	Thickness (Inches) FR
Line 1	60 x 194	60 x 180	3/8-1 1/16
Line 2	54 x 218	54 x 184 48 x 192 36 x 218	3/8-1 1/8
Line 3	48 x 291	36 x 264	1/2-1 1/8

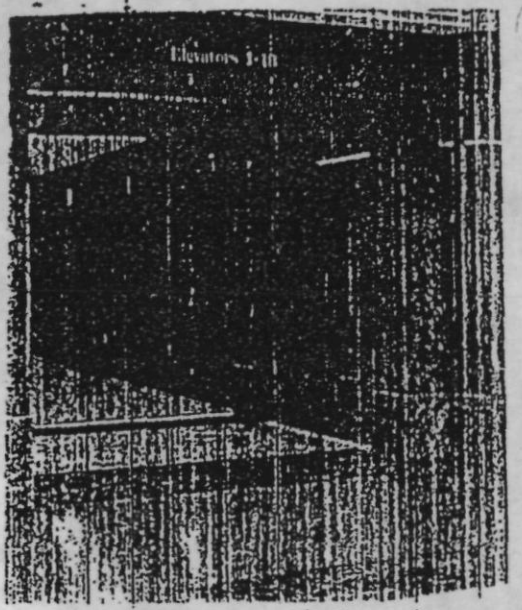
*Trimmed master panel dimensions. Desired invoiced finished panel sizes should cut evenly from master panel dimensions ranging between minimums and maximums. Prices may be influenced by percentage of maximum press size utilized. Press-width panels may be supplied with 1" trim over invoiced sizes.

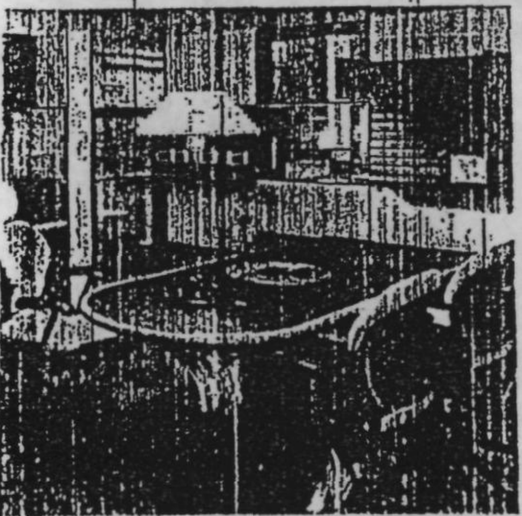
Finishes: Duraflake FR is available uncoated, UV-filled, primed or color coated from the manufacturer. From outside sources, Duraflake FR is available laminated with wood veneer and low pressure laminates. Please call the manufacturer at (503) 928-3341 for availability or quote on laminated panels.

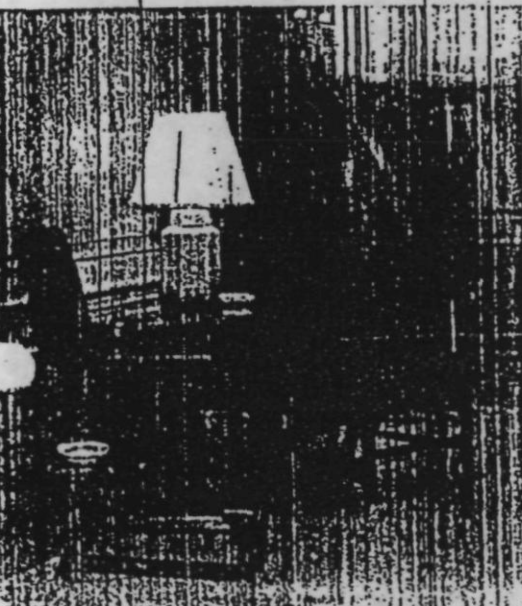
Note: Some laminates applied to Duraflake FR may change the flame spread rating of the composite panel.

Applicable Standards: ASTM E-84 tunnel test, Material and Equipment Acceptance Division, New York City, ASTM C-236, Guarded Hot Box test, UL723 Test for Surface Burning Characteristics of Building Materials.









Building Codes: BOCA, UBC, SBCC.

Agency Approvals: City of New York MEA 177-78-M; State of California Fire Marshal 2660-831:1; City of Los Angeles RR 24811; City and County of San Francisco 258 W34.1.

Physical Properties of Duraflake FR

	Duraflake FR 3/8" - 3/4"	Duraflake FR 13/16" - 1 1/4"
Density (lbs./cu.ft)	45.0	44.0
Modulus of Rupture	1600 psi	1300 psi
Modulus of Elasticity	300,000 psi	250,000 psi
Internal Bond	80 psi	60 psi
Elongation	0.35%	0.5%
Screw-holding Face	250	250
Screw-holding Edge	225	175
Thickness Tolerance (inch)	+/-.005	+/-.005

The above physical properties are based on averages of normal production. Reinspection of products for the above specifications must be done in accordance with the American National Standards Institute (ANSI) Standard for Wood Formed Particleboard A208.1.

Technical Data

Underwriters' Laboratories, Inc. Classified Wood Particleboard.

Surface Burning Characteristics, UL723.
(Based on 100 for untreated red oak)

Flame Spread	20
Smoke Developed	25

See UL Classified Building Materials Index. Listed under Wood Particleboard.

Thermal Conductivity (k) and Thermal Resistance (1/k = R)*

	3/8"	1/2"	3/4"	1"
k =	0.54	0.62	0.55	0.69
R =	1.85	1.61	1.82	1.45

*R&k values obtained using ASTM C-236 "Thermal conductance & transmittance of built up wall sections by means of the 'Guarded Hot Box' tests conducted by Northwest Testing Laboratories."

Chemical Properties: Available upon request.

Installation

Preparatory Work: Duraflake FR is a wood based panel and is considered an interior product. It must never be stored or used outside. Store flat under constant relative humidity and temperature conditions. Allow to stabilize prior to use. Ideally those conditions should be the same as those expected after the panel is installed. Laminates, if any, must be conditioned to the same state as Duraflake FR. On installation, good practices standard to fine woodwork must be used. Please contact the Architectural Woodwork Institute (AWI) (703) 671-9100 or Woodwork Institute of California (WIC) (209) 233-9035 for specific standards. When used in wall systems an integral vapor barrier must be part of the wall if the wall is exterior or the wall separates spaces conditioned unequally.

Methods: Duraflake FR can be laminated with both hot and cold press laminates. Balanced construction is advised. Most standardly available woodworking glues have been successfully used in laminating. However, some adhesives have compatibility problems with the chemical system used to treat Duraflake FR. Any adhesive should be tested for compatibility before full scale gluing. Any question about compatibility, spread rates, cure times and press temperature should be directed to the glue supplier or the manufacturer.

Hot Pressing: When hot pressing laminates on Duraflake FR use the shortest cycle time allowable within the range specified by laminate and glue suppliers. Extended cycle times or high heat may induce blows. Due to the interaction of high heat and the chemical treatment, some low pressure paper laminates may exhibit visual changes in opacity. In hot pressing care must be taken to cool the panels to 140° before stacking to preclude heat degradation.

Cold Pressing: Urea, casein and epoxies have been used successfully to bond laminates to Duraflake FR. Some contact cements and PVA's are incompatible. Their suitability should be cleared before using. With resorcinal glues certain conditions are needed for best results due to the slightly acidic nature of the retardant chemicals which tend to slow down cure rates.

THE CENTRE COMPANIES
Wholesale Distributors
Ridgewood, N.Y. 11385
JUN 24 1991

Cost: Current costs may be obtained by contacting your nearest distributor.

Warranty

The Duraflake Division of Willamette Industries, Inc. warrants Duraflake FR to be free of manufacturing defect, both in material and workmanship. Duraflake FR will perform in accordance with the specifications and applications listed, when used according to directions herein. No other warranty or guarantee is made.

Maintenance

None required for interior use when installed in conformance with manufacturer's instructions.

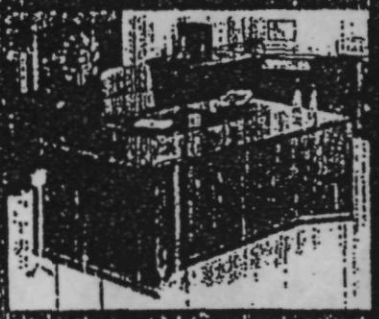
Technical Services

For details concerning the technical aspects of Duraflake FR, dial (503) 928-3341.

Other Products

Duraflake is a quality particleboard comprised of western conifer species. It is known for its uniformity and excellent machining characteristics. Duraflake's smooth surface provides an excellent base for painting, laminating and printing. Available in UV-filled or coated.

Duracoat® is a pre-painted Duraflake panel available in a variety of colors. Its durable, smooth surface is ideally suited to a broad range of manufacturing needs.



Duraflake FR

THE CHIPBOARD COMPANIES

CENTRE

release formaldehyde in low concentrations. Formaldehyde can cause temporary eye and respiratory irritation and may aggravate respiratory conditions or allergies. Proper ventilation will reduce risk of such problems.

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF FIRE TECHNOLOGY

INVESTIGATION OF THE SURFACE BURNING CHARACTERISTICS OF A FABRIC BACKED VINYL WALLCOVERING: PATTERN LINATE (ASSOCIATED PATTERNS BOURGET, KASTRUP AND SHANNON)

SwRI PROJECT NO. 01-3104-309
FINAL REPORT
JUNE 28, 1990

Prepared for:

VESCOM B.V.
ST. JOZEFSTRAAT 20
P.O. BOX 70
5750 AB DEURNE, HOLLAND

By:

Carl A. Hafer

Carl A. Hafer, P.E.
Manager
Fire Testing Services

Approved by:

Alex B. Wenzel

Alex B. Wenzel, Director
Department of Fire Technology
for
Dr. Robert E. Lyle, Vice President
Chemistry and Chemical Engineering

This report is for the information of the Client. It may be used in its entirety for the purpose of securing product acceptance from duly constituted approval authorities. Neither this report nor the name of the Institute shall be used in publicity or advertising.

INTRODUCTION

This report presents the results of ASTM E84 flame spread tunnel tests on material submitted by the Client. It contains a description of the materials tested, the preparation and conditioning of the specimens, the test procedure, and finally, the test results.

Materials are tested under ASTM E84-89a, "Standard Method of Test for Surface Burning Characteristics of Building Materials." This test method is similar to the test method specified in NFPA No. 255, UL No. 723 and UBC No. 42-1. ASTM E84 is a test procedure method only and does not set requirements for materials. Therefore, SwRI does not assign a classification to the material tested. Building codes, such as the Uniform Building Code, have requirements dependent on the building type, occupancy, etc. The building code having jurisdiction in the location a material is to be used will determine compliance of the test results. The actual test specification followed, including the appropriated revision, is indicated on the individual summary pages.

The results apply specifically to the specimens tested, in the manner tested, and not to the entire production of these or similar materials, nor to the performance when used in combination with other materials. All test data are on file and are available for review by authorized persons.

The purpose of the test is to evaluate performance of the test specimens in relation to that of glass-reinforced cement board and red oak flooring under similar fire exposure. The results are expressed in terms of flame spread, smoke developed and temperature during a 10-minute exposure and are recorded as a ratio with glass-reinforced cement board 0 and red oak flooring 100.

The following pages represent a summary of the information obtained during the evaluation of the submitted material. **These summary pages and graphs are not to be used separately, in lieu of this complete final report.**

DESCRIPTION AND PREPARATION OF MATERIALS

Each material submitted for evaluation is reported separately. The description of the tested sample, cure time and test date are listed in the Description section of the appropriate summary page.

Each 21-in. x 25-ft (0.53 x 7.63-m) specimen is prepared in accordance with standard procedures and the Client's instructions. Exceptions to the standard procedure are noted in the Description section on the summary page.

The specimens are conditioned in an atmosphere maintained between 68 and 78°F (20 and 26°C) temperature and 45- to 55-percent relative humidity.

TEST PROCEDURE

Reference data are obtained and furnace operation checked by conducting a 10-minute test with glass-reinforced cement board on the day of the test and by periodic tests with red oak flooring. These tests provide the 0 and 100 references for flame spread and smoke developed. Ignition over the burners was noted 41 seconds after the start of the test in the most recent calibration with red oak flooring. Each specimen to be evaluated is tested in accordance with the standard procedure.

TEST RESULTS

The test results are calculated on the basis of observed flame travel and the measurement of areas under the recorder curves of

furnace temperature and smoke developed. To allow for possible variations in results due to limitations of the test method, the numerical results are adjusted to the nearest figure divisible by 5. Results for each test are presented in the appropriate summary page.

OBSERVATIONS DURING AND AFTER TESTS

The observations made during and after each test are presented on the summary page.

GRAPHICAL DATA

Recorded data for flame spread, smoke developed and temperature for each specimen are shown in the figures following the summary page as a solid line on each graph.

ASSOCIATED PATTERNS

Associated patterns, where applicable, are considered from the standpoint of variation in colorway, fiber content, unit weight and thickness. Based upon past experience with similar wallcovering material, flame spread and smoke developed values should not vary appreciably from those given by the tested sample. When included, the Client stated that the wallcovering tested is representative of the qualities listed.

UBC 4202.A DELAMINATION TEST

When required, two specimens, consisting of 12 x 12-in. (0.31 x 0.31-m) sections of wallcovering bonded to 0.25-in. (6.35-mm) glass-reinforced cement board with designated adhesive, are prepared from the submitted material. The specimens are conditioned at 70 5°F and 45 5-percent relative humidity for a minimum of 2 days. One specimen is placed horizontally, the other vertically, in a laboratory oven at 300°F for 25 minutes. The specimens are then

removed and examined. Observations made at this time cannot display any evidence of detachment during the exposure period. The results of the UBC 4202.A Delamination or Peel-Off Test are recorded as passed or failed on the following summary pages. This test is applicable only to wallcoverings which are 0.036 in. (0.914 mm) or more in thickness.

DESCRIPTION

Company:	Vescom B.V.			
Date Received:	06/05/90			
Identification:	28184 Linate			
Description:	Embossed vinyl wallcovering with a cheesecloth back			
Color:	Off-white/light gray			
Amount Received:	1 roll(s)			
Width:	51.125	in.	(1.299	m)
Length:	381.0	in.	(9.677	m)
Nominal Thickness:	0.042	in.	(1.067	mm)
Total Weight:	23.2	lb	(10.533	kg)
Nominal Unit Weight:	25.8	oz/sq.yd	(0.875	kg/sq.m)

PREPARATION AND CONDITIONING

Substrate Used:	0.25-in. (6.35-mm) glass-reinforced cement board
Adhesive Used:	Shur-Stik 111
Date In Lab:	06/06/90
Conditioning:	21 days, 70°F and 50% relative humidity
Preparation:	Four 21 x 75-in. (0.53 x 1.91-m) pieces were cut from the roll submitted by the Client. Each piece was backcoated with designated adhesive and applied to equivalent-sized sections of primed 0.25-in. (6.35-mm) glass-reinforced cement board. All wrinkles and air pockets were removed with a roller to assure a firm bond.

TEST RESULTS

Test Date:	06/27/90
Test Time:	16:53:53
Flame Spread Index:	15
Smoke Developed Index:	155
UBC 4202.A Delamination Results:	Passed
Associated Patterns:	Bourget, Kastrup and Shannon

OBSERVATIONS DURING TEST

Color Change, min:s	0:21		
Spotty Ignition, min:s	0:46		
Steady Ignition, min:s	1:10		
Cracks, min:s	1:25		
Peeling, min:s	1:50		
Dripping, min:s	1:48		
Pieces Falling, min:s	1:55		
Burning on Floor, min:s	2:17		
Burning on Floor Out, min:s	5:42		
Maximum Flame Front Position, min:s	2:15		
	9.00	ft	(2.74 m)
Afterflame Top, min:s	0:06		

OBSERVATIONS AFTER TEST

Consumed/Complete Char To	6.50	ft	(1.983	m)
Blisters Without Char To	24.0	ft	(7.320	m)
Blisters With Char To	14.0	ft	(4.270	m)
Surface Char To	14.0	ft	(4.270	m)
Severe Char To	8.00	ft	(2.440	m)
Discoloration To	25.0	ft	(7.625	m)

Armstrong

August 31, 1990

Mr. Michael Mayorca
The City of New York
Board of Standards and Appeals
11th Floor
161 Avenue of the Americas
New York, NY 10013

Dear Mr. Mayorca:

Subject: Calendar Numbers Assigned to Armstrong World Industries, Inc.
Affidavits for Annual Recertification, September 1990-91

Enclosed are 15 affidavits that, according to our records, cover all active calendar numbers assigned to Armstrong World Industries, Inc., and are due for renewal in September. The products and respective calendar numbers reviewed for their current status of validity and for which we have included affidavits for 1990-91 are summarized below.

Calendar Number	Armstrong Product
56-42-SM	Cushiontone, Class D
815-47-SM	Travertone
316-52-SM	Minatone
79-53-SM	Accessible Tile System
1031-57-SM	Minaboard
72-59-SM	Acoustical Fire Guard
28-64-SM	Acoustical Travertone Fire Guard
29-64-SM	Acoustical Fire Guard Lay-In
550-64-SM	Fire Guard Lay-In Units
73-66-SM	Ceramaguard
96-66-SM	Vinyl Wall Base
777-72-SM	Accessible Tile System
778-72-SM	Acoustical Fire Guard Ceiling
4-73-SM	Armashield Ceiling Panel
620-40-SM	Acoustical Ceiling Panel (Glass Fiber)

Also enclosed is a check for $450.00 covering the $30.00 per affidavit administration processing fee.

The following calendar numbers will not be renewed this year.

Calendar Number	Armstrong Product
1150-64-SM	Ventilating Travertone Fire Guard
242-71-SM	Armaflex Pipe Insulation

If this summary of our calendar numbers and products does not agree with your records, please contact me in Lancaster, Pennsylvania, at (717) 396-2273.

Sincerely,

D. M. Dearolf

D. M. Dearolf
Quality Assurance Specialist
Corporate Quality Assurance

SDT

Enclosures

Arch Bldg Prod Div
D. H. Dowd, Saddle Brook
R. W. Hadfield
Res Bldg Prod Div
M. J. Fischer, Saddle Brook
E. T. Shawaryn, Jr.
Intl & Ind Prod Opr
T. J. Bernlohr, Saddle Brook
W. H. Offermann
Fl Div
D. C. Blake, Saddle Brook
L. J. Dowling, Saddle Brook
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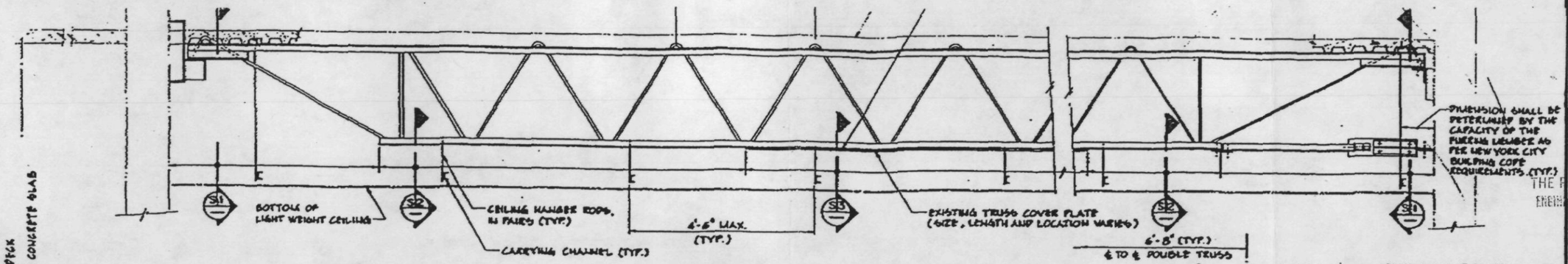
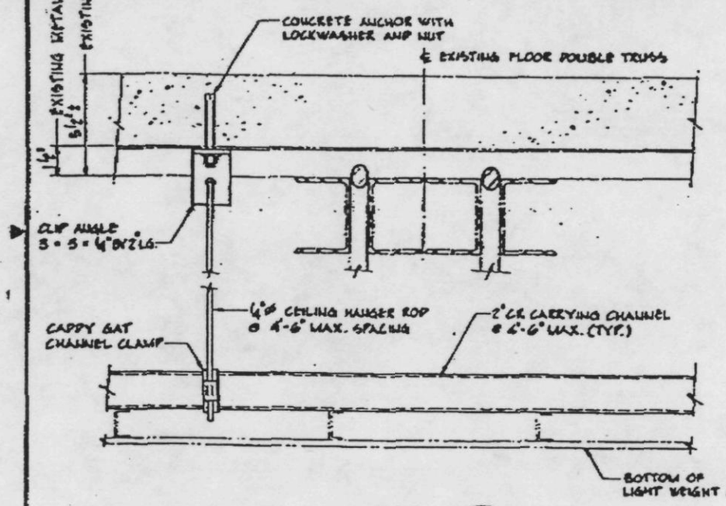
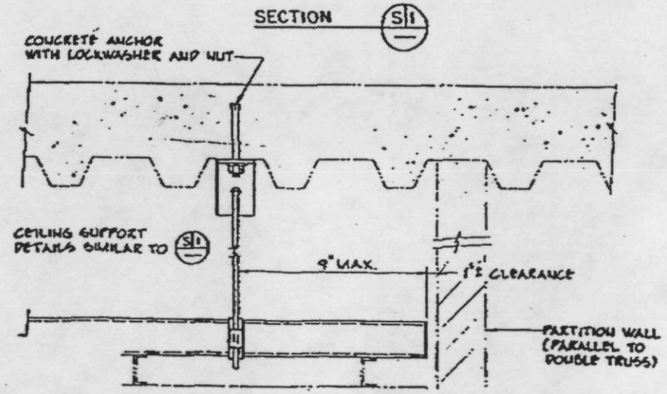
(212) 947-6645
FAX 947-6749

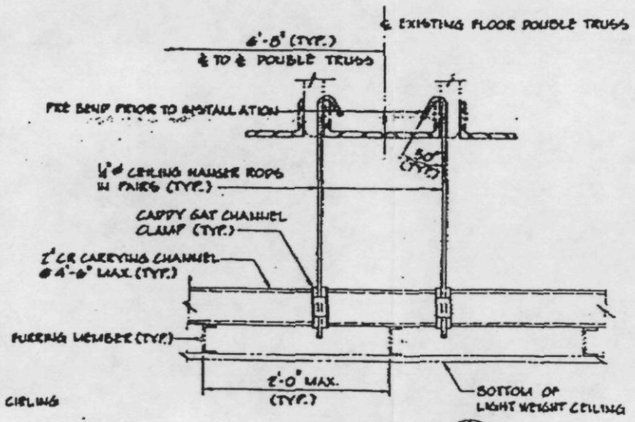


PART ELEVATION
TYPICAL FLOOR DOUBLE TRUSS

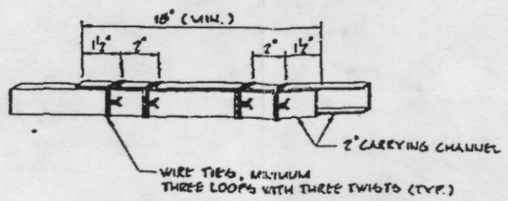


SECTION S1

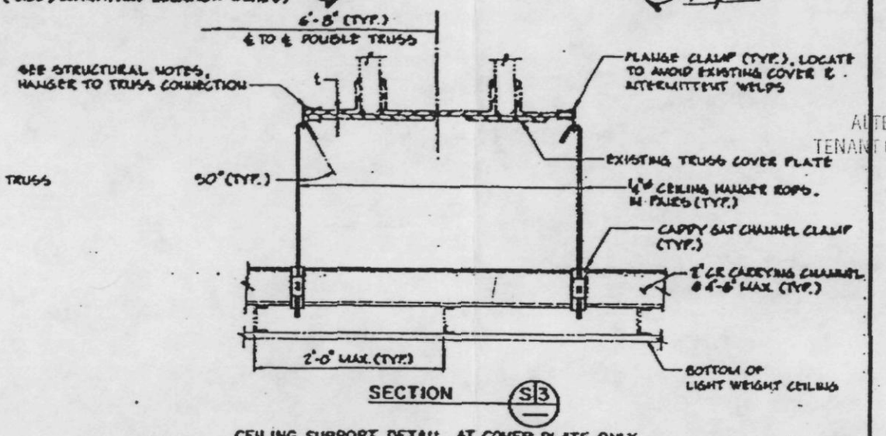




SECTION S2



TYPICAL 2" CHANNEL SPLICE DETAIL



SECTION S3

CEILING SUPPORT DETAIL AT COVER PLATE ONLY

NOTES:

1. MATERIALS
   - CONCRETE ANCHORS - ⅜"Ø LIEBIG SAFETY BOLTS (TYPE LSH OR LSH) WITH A MINIMUM EMBEDMENT OF 1⅝", OR HILTI HSL OR HSLD ANCHORS, SIZE M8 WITH A MINIMUM EMBEDMENT OF 2½" AND A MAXIMUM EMBEDMENT LENGTH OF 3".
   - CLIP ANGLES - HOT ROLLED ASTM A36 STEEL.
   - HANGERS - ½"Ø A36 GALVANIZED STEEL ROD.
   - CARRYING CHANNEL - 2" COLD ROLLED CHANNELS - (F_y = 33 ksi Min.) - UNIFORM WEIGHT 390 LBS/1000 LFT. (PAINTED)
   - HANGER TO TRUSS CONNECTION - AT COVER PLATE ONLY
     A. THICKNESS OF BOTTOM FLANGE OF TRUSS $t \leq 0.75"$: CADDY HEAVY DUTY FLANGE CLAMPS MANUFACTURED BY ERICO PRODUCTS INC. - B5A # 1312-64-SM.
     B. THICKNESS OF BOTTOM FLANGE OF TRUSS $t > 0.75"$: UNIVERSAL C-CLAMP FIG. 95 (WITH THROAT) 0.41 LBS. EACH IS MANUFACTURED BY GRINNELL CORP. OR APPROVED EQUAL. INSTALL C-CLAMP WITH SET SCREW IN TOP POSITION.
   - HANGER TO CARRYING CHANNEL - CADDY CAT CHANNEL CLAMP, MODEL 482LS, MANUFACTURED BY ERICO PRODUCTS INC. - B5A # 1151-GB-SM.
   - WIRE TIES - 16 GA. STAINLESS STEEL AISI - TYPE 304 OR MONEL METAL.
2. REMOVAL OF FIREPROOFING SHALL BE KEPT TO A MINIMUM AND SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE PORT AUTHORITY ARCHITECT.
3. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT CATALOG CUTS, SAMPLES, LAYOUT DRAWINGS AND DETAILS OF ALL COMPONENTS OF THE CEILING SUPPORT SYSTEM FOR THE PORT AUTHORITY ARCHITECT'S APPROVAL PRIOR TO THE START OF ANY WORK IN THE FIELD.
4. OTHER CEILING COMPONENTS AND DETAILS NOT SHOWN SHALL CONFORM TO THE LATEST NEW YORK CITY BUILDING CODE REQUIREMENTS.
5. THE RAMSET FASTENING SYSTEM WITH LADD DRIVE PIN # 634 (1½" LONG), POWER LOAD "RED" FOR INSTALLATION, AND THE LADD CEILING CLIP # SUBSTITUTE THE HANGER TO CONNECTION DETAIL SHOWN INTO 3000 P.S.I. LIGHT WEIGHT CONCRETE SLAB OVER GAL RED

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE
DESIGN STANDARDS
W-4636 (C)
AUG 19 1991

RECEIVED
ALTERATIONS, APPLICATION
TENANT CONSTRUCTION REVIEW U
office copy

NO	DATE	REVISIONS

JOB TITLE: CEDEL 1 WTC

DRAWING TITLE: STRUCTURAL CLG SUPPORT DETAILS

PROJECT NO.

DRAWN BY: FL

CHECKED BY: SB

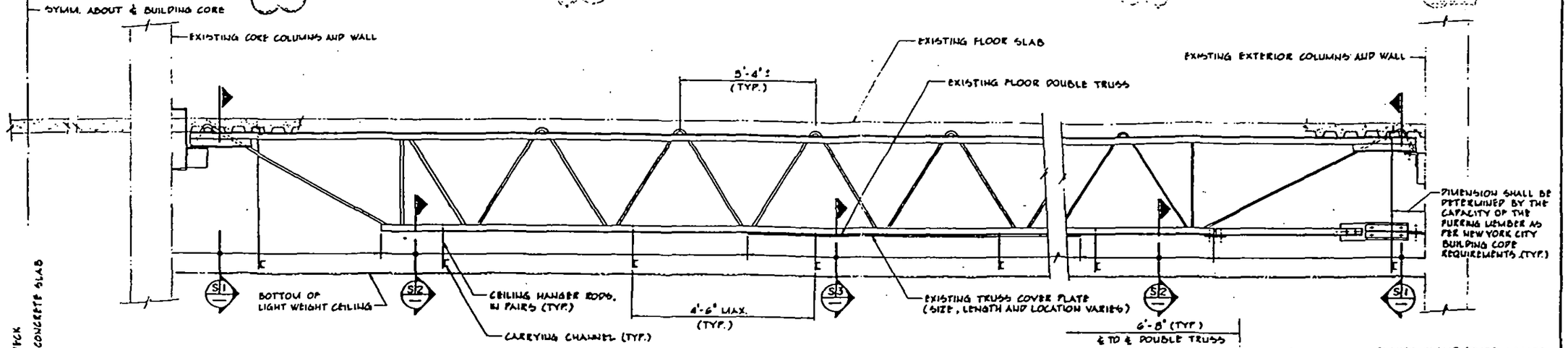
SCALE: NTS

DATE: July 18, 1991

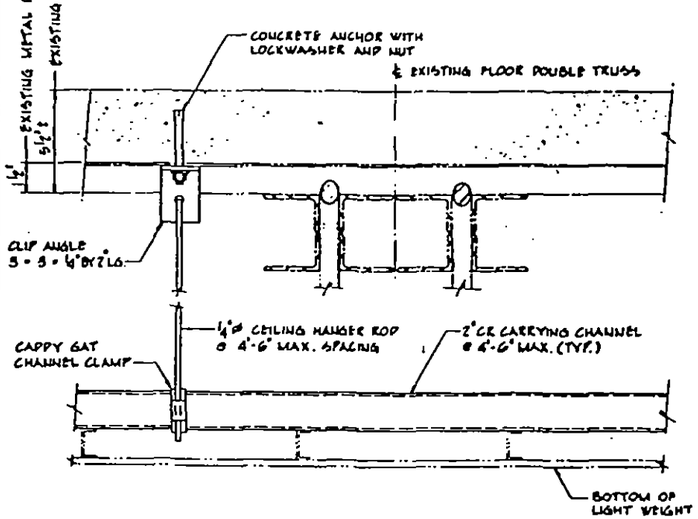
DRAWING NO.: CSK-01

153069

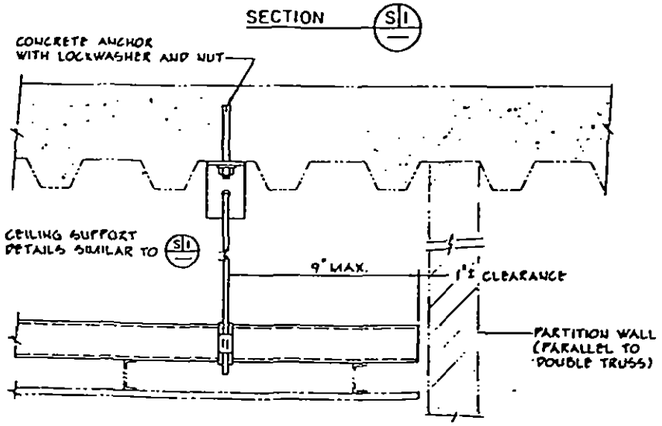
PLAZA



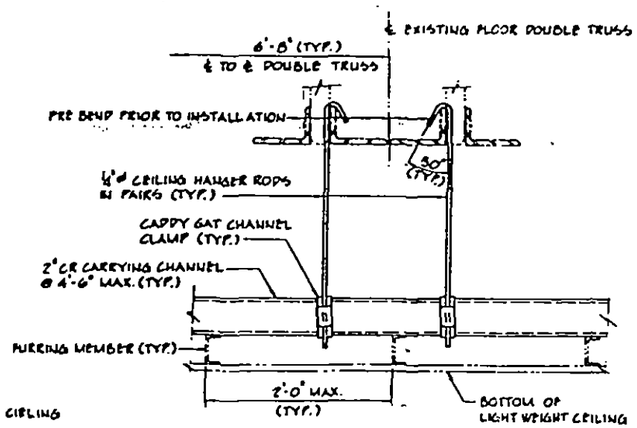
PART ELEVATION
TYPICAL FLOOR DOUBLE TRUSS



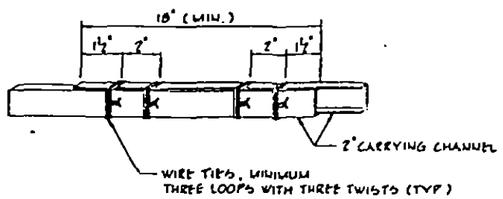
SECTION S1



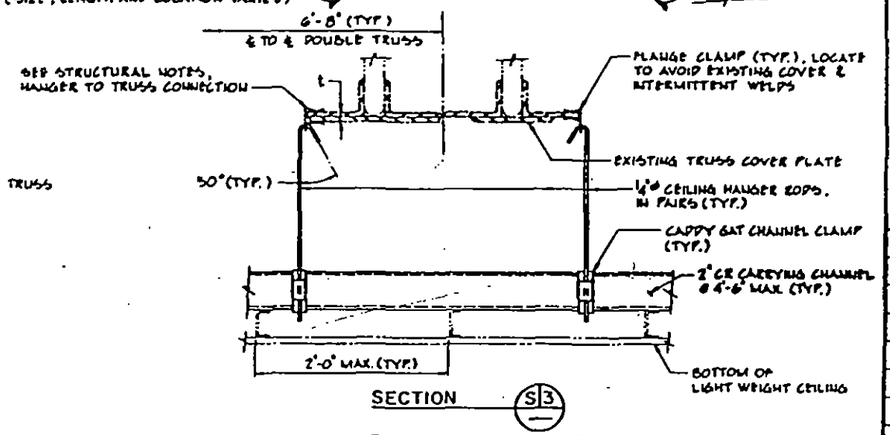
TYPICAL SECTION AT PARTITION WALL



SECTION S2



TYPICAL 2" CHANNEL SPLICE DETAIL



SECTION S3

CEILING SUPPORT DETAIL AT COVER PLATE ONLY

NOTES:

1. MATERIALS
   - CONCRETE ANCHORS - ⅜"ø LIEBIG SAFETY BOLTS (TYPE LSH OR LSH) WITH A MINIMUM EMBEDMENT OF 1¾", OR HILTI HSL OR HSLD ANCHORS, SIZE M8 WITH A MINIMUM EMBEDMENT OF 2¼" AND A MAXIMUM EMBEDMENT LENGTH OF 3".
   - CLIP ANGLES - HOT ROLLED ASTM A36 STEEL.
   - HANGERS - ¼"ø A36 GALVANIZED STEEL ROD.
   - CARRYING CHANNEL - 2" COLD ROLLED CHANNELS (Fy=33 ksi MIN) - MINIMUM WEIGHT 390 LBS/1000 LFT. (PAINTED)
   - HANGER TO TRUSS CONNECTION - AT COVER PLATE ONLY
     A. THICKNESS OF BOTTOM FLANGE OF TRUSS t ≤ 0.75": CAPPY HEAVY DUTY FLANGE CLAMPS MANUFACTURED BY ERICO PRODUCTS INC. - BSA # 1312-64-SM.
     B. THICKNESS OF BOTTOM FLANGE OF TRUSS t > 0.75": UNIVERSAL C-CLAMP FIG. 93 (WIDE THROAT) 0.41 LBS. EACH AS MANUFACTURED BY GRINNELL CORP. OR APPROVED EQUAL. INSTALL C-CLAMP WITH SET SCREW IN TOP POSITION.
   - HANGER TO CARRYING CHANNEL - CAPPY CAT CHANNEL CLAMP, MODEL 482LS, MANUFACTURED BY ERICO PRODUCTS INC. - BSA # 151-CC-SM.
   - WIRE TIES - 16 GA. STAINLESS STEEL AISI - TYPE 304 OR MONEL METAL.
2. REMOVAL OF FIREPROOFING SHALL BE KEPT TO A MINIMUM AND SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE PORT AUTHORITY ARCHITECT.
3. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT CATALOG CUTS, SAMPLES, LAYOUT DRAWINGS AND DETAILS OF ALL COMPONENTS OF THE CEILING SUPPORT SYSTEM FOR THE PORT AUTHORITY ARCHITECT'S APPROVAL PRIOR TO THE START OF ANY WORK IN THE FIELD.
4. OTHER CEILING COMPONENTS AND DETAILS NOT SHOWN SHALL CONFORM TO THE LATEST NEW YORK CITY BUILDING CODE REQUIREMENTS.
5. THE RAMSET FASTENING SYSTEM WITH LADD DRIVE PIN # 584 (1½" LONG), POWER LEVEL "RED" FOR INSTALLATION, AND THE LADD CEILING CLIP #651 IS PERMITTED TO SUBSTITUTE THE HANGER TO CONNECTION DETAIL SHOWN IN SECTION S3, ANCHORED INTO 3000 P.S.I. LIGHT WEIGHT CONCRETE SLAB OVER GALVANIZED METAL DECK.

Sheet of

THE PORT AUTHORITY OF NY & NJ

ENGINEER OF DESIGN AIRPORTS & WTC

CHIEF STRUCTURAL ENGINEER

Engineering Department
Design Divisions

World Trade Center

Title

LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS WITH DOUBLE TRUSS

1 WTC & 2 WTC

No.	Date	Revision	Approved
1	7-15-97	ADDED NOTE N° 5	03

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent.

Designed by Drawn by Task Leader

SENIOR ENGINEER

Date APR. 30, 1997 Scale N.T.S.

Contract Number Drawing Number

S-1

MEMO.

July 18. 91

TO PAUL COOPER / VARIOUS DISTRIBUTION

FROM L. GUPTA

RE. W4636 - SEDEL SA (MEMO July 1, 91).
2 ARCHITECTURAL COMMENTS
3 STRUCTURAL COMMENTS.

① I DISCUSSED THE ABOVE COMMENTS WITH STEVE BROOKS AND FRANK LOFFREDO OF DEPOLO/DUNBAR ARCHITECTS. THE TWO ARCHITECTURAL COMMENTS ARE REGARDING DOCUMENTATION TO BE OBTAINED FROM INDEPENDENT REGISTERED LABORATORIES FOR INTERIOR FINISHES SPECIFIED. STEVE IS FURNISHING US THESE DOCUMENTS IN THE NEXT RESPONSE.
THE VINYL TILE VT/01 IS ALREADY INSTALLED IN THE PANTRY (PER STEVE BROOKS) WHICH DOESN'T MEET THE PANYNJ TERM MANUAL CRITERIA REGARDING SMOKE DEVELOPED RATING (350 AS AGAINST MAX 300). STEVE TELLS ME THAT SUCH TILE FINISH IS ALREADY APPROVED IN PAST BY PA
NOTE. AFTER RESEARCHING THE CODE IT IS DECIDED THAT THE VINYL TILE VT/01 MEETS PA'S APPROVAL. FRANK LOFFREDO IS INFORMED ACCORDINGLY TODAY 7/19/91.

② I DISCUSSED THE STRUCTURAL COMMENTS 3 AND 4 WITH FRANK LOFFREDO. A COPY OF STRUCTURAL DETAILS FOR LIGHT WT CLG SUPPORT SYSTEM FOR FLOORS WITH DOUBLE

TRUSSED TRUSSES (DWGS-1 DATED 7-14-87) IS FAXED TO THEIR (DePOLO/DUNBAR) OFFICE. FRANK WILL PROVIDE P.A WITH AN ADDENDUM TO SATISFY THE TWO COMMENTS IN QUESTION IN THE NEXT RESPONSE.

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Julian Kau, General Manager,
Planning, Design & Construction, WT&ED
From: Ennala Ramabhushanam
Date: July 1, 1991
Subject: **WTC - ALTERATION APPLICATION W-4636 - CEDEL, S.A. - 1 WTC - 90TH FLOOR - GENERAL CONSTRUCTION**

Reference: Review Request dated 6/21/91

Copy To: J. Costa, G. Gaeta, L. Menno, R. Wegel, Job Folder, Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation of approval to proceed with construction remains unchanged subject to the submission of the items listed below being revised in accordance with the four (4) requirements listed on the attached rider.

Drawings: Test Reports:

REMARKS: 1) The attachment regarding ceiling suspension details will follow with the signed compy of this memorandum.

2) This memorandum was transmitted to the Facility via OA on July 1, 1991.

For Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

KG/rr
att.

[redacted]

RIDER

ALTERATION APPLICATION W-4636

ARCHITECTURAL

1. The response to Comment 1 is noted. Please provide a copy of a BS&A or MEA Approval Number as per NYC Building Code Section C26-106.2. The documentation provided by Armstrong is not acceptable (Repeat Comment).

2. Dwg. A-5, Finish Plan. The response to Comment 2 is noted. Please submit documentation for interior finishes such as WC/01 Pl/01, PL/02 and VT/01 as specified, indicating that they are in compliance with all the requirements of NYC Building Code Section C26-504.10 regarding flame spread ratings, smoke-developed ratings, and toxicity. The manufacturer's certification is not acceptable. The documentation shall be obtained from an independent registered laboratory.

   The vinyl tile VT/01 Test Report indicates smoke-developed ratings as 350. This number cannot exceed 300 per PANYNJ TCRU Manual revised March 1990, amended October 1990. (Modified Repeat Comment)

STRUCTURAL

3. Dwg. A-3, "Typ. Lay-in Acoustical Tile Ceiling," Dwg. A-8, Section D. The ceiling support system shall agree with PANYNJ Dwg. S-1, "Lightweight Ceiling Support System, 1 WTC and 2 WTC." Please revise and submit for review. (Modified Repeat Comment) See Attachment.

4. Dwg. A-9, Section 6. For metal studs supporting the suspended "ceiling fixture," please indicate the connection details to the existing construction and submit for review. (Repeat Comment)

070191

CEILING SUPPORT DETAIL AT COVER PLATE ONLY

NOTES:

1. MATERIALS
   - CONCRETE ANCHORS - $\frac{3}{8}$"Ø LIEBIG SAFETY BOLTS (TYPE LSN OR LSH) WITH A MINIMUM EMBEDMENT OF $1\frac{3}{4}$", OR HILTI HSL OR HSLB ANCHORS, SIZE M8 WITH A MINIMUM EMBEDMENT OF $2\frac{1}{2}$" AND A MAXIMUM EMBEDMENT LENGTH OF 3".
   - CLIP ANGLES - HOT ROLLED ASTM A36 STEEL.
   - HANGERS - $\frac{1}{4}$"Ø A36 GALVANIZED STEEL ROD
   - CARRYING CHANNEL - 2" COLD ROLLED CHANNELS - (Fy = 33 ksi MIN.) - MINIMUM WEIGHT 390 LBS./1,000 LFT. (PAINTED)
   - HANGER TO TRUSS CONNECTION - AT COVER PLATE ONLY
     A. THICKNESS OF BOTTOM FLANGE OF TRUSS $t \leq 0.75$":
        CADDY HEAVY DUTY FLANGE CLAMPS MANUFACTURED BY ERICO PRODUCTS INC. - BSA # 1312-64-SM.
     B. THICKNESS OF BOTTOM FLANGE OF TRUSS $t > 0.75$":
        UNIVERSAL C-CLAMP FIG. 93 (WIDE THROAT) 0.41 LBS. EACH AS MANUFACTURED BY GRINNELL CORP. OR APPROVED EQUAL; INSTALL C-CLAMP WITH SET SCREW IN TOP POSITION.
   - HANGER TO CARRYING CHANNEL - CADDY CAT CHANNEL CLAMP, MODEL CAT2LS, MANUFACTURED BY ERICO PRODUCTS INC. - BSA # 131-68-SM.
   - WIRE TIES - 16 GA. STAINLESS STEEL AISI - TYPE 304 OR MONEL METAL.

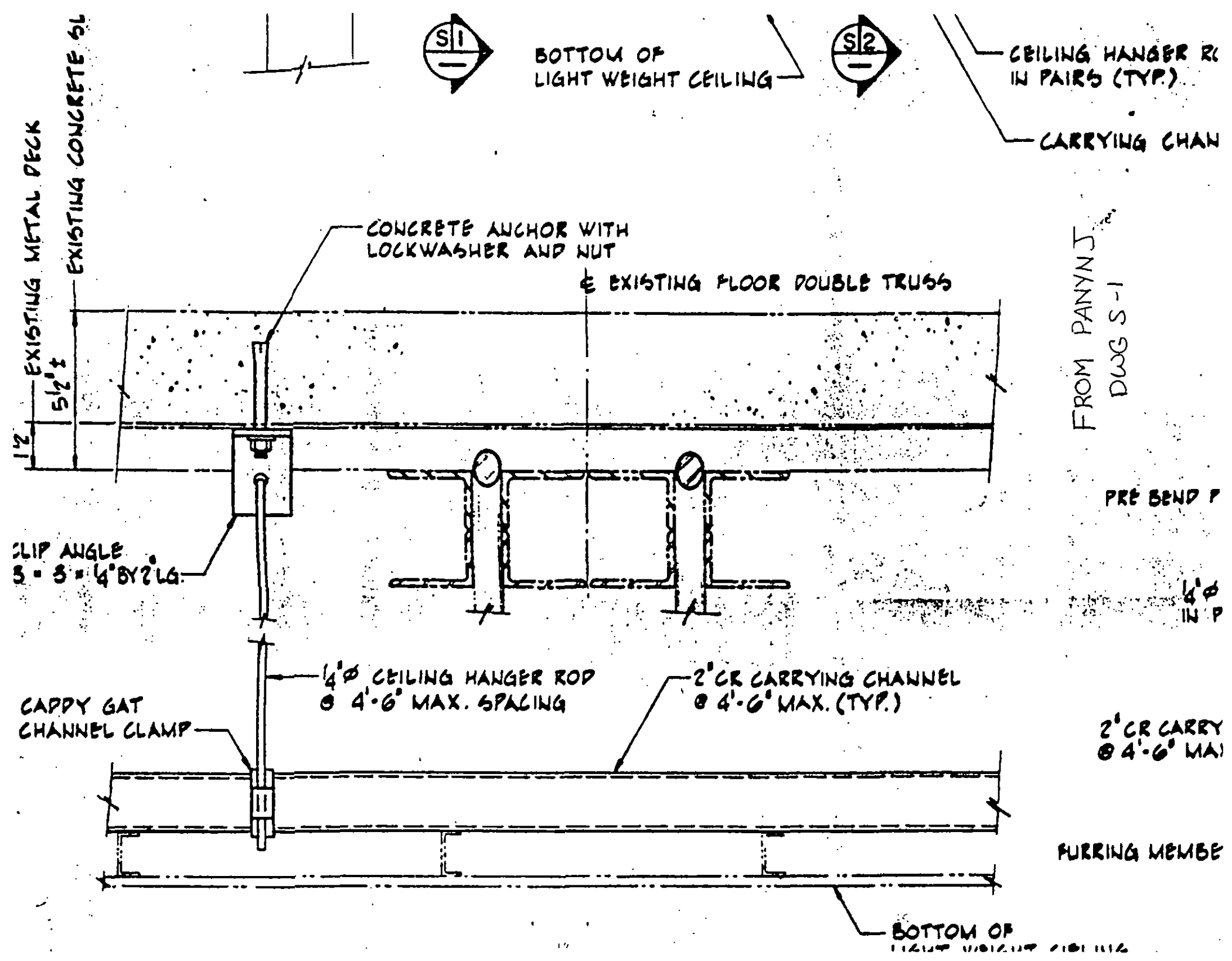
2. REMOVAL OF FIREPROOFING SHALL BE KEPT TO A MINIMUM AND SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE PORT AUTHORITY ARCHITECT.

3. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT CATALOG CUTS, SAMPLES, LAYOUT DRAWINGS AND DETAILS OF ALL COMPONENTS OF THE CEILING SUPPORT SYSTEM FOR THE PORT AUTHORITY ARCHITECT'S APPROVAL PRIOR TO THE START OF ANY WORK IN THE FIELD.

4. OTHER CEILING COMPONENTS AND DETAILS NOT SHOWN SHALL CONFORM TO THE LATEST NEW YORK CITY BUILDING CODE REQUIREMENTS.

5. THE RAMSET FASTENING SYSTEM WITH LADD DRIVE PIN # 684 (1'2" LONG), POWER LEVEL "RED" FOR INSTALLATION, AND THE LADD CEILING CLIP #651 IS PERMITTED TO SUBSTITUTE THE HANGER TOP CONNECTION DETAIL SHOWN IN SECTION (3/L-1), ANCHORED INTO 3000 P.S.I. LIGHT WEIGHT CONCRETE SLAB OVER GALVANIZED METAL DECK.

FROM PANYNJ DWG S-1


S1
S2
BOTTOM OF
LIGHT WEIGHT CEILING
CEILING HANGER R
IN PAIRS (TYP.)
CARRYING CHAN
EXISTING CONCRETE SL
EXISTING METAL DECK
5½"±
1½
CONCRETE ANCHOR WITH
LOCKWASHER AND NUT
℄ EXISTING FLOOR DOUBLE TRUSS
FROM PANYN J
DWG S-1
PRE BEND F
CLIP ANGLE
3 x 3 x ¼" BY 2" LG.
¼"ø
IN P
¼"ø CEILING HANGER ROD
@ 4'-6" MAX. SPACING
2"CR CARRYING CHANNEL
@ 4'-6" MAX. (TYP.)
CADDY CAT
CHANNEL CLAMP
2"CR CARRY
@ 4'-6" MA
FURRING MEMBE
BOTTOM OF

TENANT ALTERATION REVIEW REQUEST
World Trade and Economic Developement

6/21

No. Routing Loc.	Applicant's Name: CEDEL, S.A.	Facility: WORLD TRADE CENTER
QUALITY ASSURANCE 51W [redacted] P.Cooper W/1 W/2	T.A.A. No. W-4636	Dwg.No(s). See attached A-3, A-8
IN HOUSE 36S ___ R.Becker W/1 ___ V.Levinson W/1 ___ Sen Pu Chiao W/1	Contract No: 591.970	
	Location: WTC/90 fl	
	Date: 6-21-91	
WT&EDD CONSTR. 36N ___ P.Cavanagh W/1	[ ] SPECIAL INSTRUCTIONS:	
OPERATIONS B2 RM.211 ___ T.Cancelliere W/1	Originating Unit: 829	Proj.Mgr: John P.Vinciguerra Extn: 435 - 2960 36W
RISK MANAGEMENT Z57 __S.Altman PATC 3FL W/1 __G.Sepie PATC 2FL __	Please return no later than: 7-5-91	
	Supervisor: Gerard Gaeta Extn. 435-2057 36W	
ASBESTOS 36N ___ F.Boyce W/1	Submission: 1st [ ] 2nd [ ] 3rd [ ] 4th [ ] 5th [✓] 6th [ ] other [ ]	
	Construction cost: $ 200,000	

Description of work:

Office copy

[✓] General construction: [ ] Construction limited to: W-4636 ⑤

[ ] Minor work including:

[✓] Architectural [ ] Electrical [ ] Plumbing [ ] _____
[✓] Structural [ ] HVAC [ ] Sprinkler [ ] _____
[ ] Other: _____

Attached are:

[✓] BS&A / MEA resolutions [✓] Laboratory test reports for carpeting
[ ] Catalog cuts [ ] Samples [ ] _____
[✓] Consultants' responses to Port Authority review comments

Remarks: _____

cc: G. Daly, G. Gaeta, E. Monteverde, T. Rush, J. Uryini, R. Wegel, G. Wenger, J.P. Vinciguerra, T. Lynch (Rentals Rep.)

Signature: Gerard Gaeta Date: 6/21/91

(For) Louis Menno, Manager
Contract and Tenant Services Division
World Trade and Economic Developement

jpv 05/21/91

June 17, 1991

Mr. Gerry Gaeta
Port Authority
Approvals & Construction
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
One World Trade Center
d/D Project #1150

Dear Mr. Gaeta:

This letter serves as a response to your letter to Phil Humbert dated May 14, 1991 regarding the following comments:

1. Comment #1 and #3 are noted on drawings. Attached are copies of same.

2. Attached is the appropriate information and test results for all interior finishes as shown on Drawing A-5.

If you have any questions, please call.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

Steven Brooks
Principal

SB:dd

cc: Phil Humbert
Frank Loffredo

RECEIVED
JUN 21 1991
PORT AUTHORITY OF NY & NJ
PWTIED DEPARTMENT, 1WTC

PT-02

Project No. 3-2947-466b
Final Report

INVESTIGATION OF SURFACE BURNING CHARACTERISTICS OF FOURTEEN COATING SYSTEMS

for

Benjamin Moore & Company
Newark, New Jersey

October 6, 1971

This report is for the information of the Sponsor. It may be used in its entirety for the purpose of securing product acceptance from duly constituted approval authorities; however, this report or the name of the Institute shall not be used in publicity or advertising.

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO CORPUS CHRISTI HOUSTON

SOUTHWEST RESEARCH INSTITUTE
8500 Culebra Road, San Antonio, Texas 78284

Department of Structural Research
Fire Research Section

INVESTIGATION OF SURFACE BURNING CHARACTERISTICS OF FOURTEEN COATING SYSTEMS

C. A. Hafer

Project No. 3-2947-466b
Final Report

Prepared for

Benjamin Moore & Company
134 Lister Avenue
Newark, New Jersey 07105

October 6, 1971

Reviewed by:

Calvin H. Yuill, Manager
Fire Research Section

APPROVED:

Robert C. DeHart, Director
Department of Structural Research

I. INTRODUCTION

This report is a presentation of the results of flame spread tunnel tests on 14 coating systems submitted for evaluation by Benjamin Moore & Company of Newark, New Jersey.

The report contains a description of the materials, the preparation and conditioning of the specimens, the test procedure, and the test results. The results presented apply only to the specimens tested and not to the entire production of these or similar materials. These reflect performance in the manner tested - not necessarily performance when used in combination with other materials. All test data are on file and are available for review by authorized persons.

The tests were conducted in accordance with the provisions of ASTM Designation E84-70, "Standard Method of Test for Surface Burning Characteristics of Building Materials." This test method is identical to that specified in ANS No. 2.5, NFPA No. 255, UL No. 723 and UBC No. 42-1.

The purpose of the test is to evaluate performance of a material in relation to that of asbestos-cement board and red oak flooring under similar fire exposure. The results are interms of flame spread, fuel contributed and smoke developed during a 10-minute exposure and are expressed as a ratio with asbestos-cement board zero and red oak flooring 100.

II. DESCRIPTION OF MATERIALS

On August 5, 1971 one 5-gal can of Nitro-Tex Hi Build Lacquer Latex Interior Paint was received from Benjamin Moore & Company, Cleveland, Ohio. On August 6, 1971 sixteen 1-gal cans of paint were received from Benjamin Moore & Company, Newark, New Jersey. The materials were labeled as shown in Table 1 Descriptions.

III. PREPARATION AND CONDITIONING OF TEST SPECIMENS

Except for coating systems 1 and 2 all coatings were applied on 1/4" asbestos-cement board using three 21" x 8' and one 21" x 12" pieces for each test specimen. Systems 1 and 2 were applied on 3/8" gypsum board. The fourteen coating systems were prepared according to the sponsor's instructions as in Table 2 Coating Systems Preparation.

The specimens were placed in the conditioning room where the atmosphere is maintained at between 70° and 75° F temperature and 35 to 40 percent relative humidity. The latex coatings (1, 2, 5, 6 and 13) were conditioned for approximately 10 days and the others for approximately 30 days.

IV. TEST PROCEDURE

The tests were conducted on August 16, September 9 and 29, 1971. Reference data were obtained and furnace operation checked by conducting a 10-minute test with asbestos-cement board on the day of the test and by

TABLE I. DESCRIPTIONS

Nitro-Tex Hi Build Lacquer Latex Interior Flat, Sapphire White, 343-01 (for airless spray)

Hi Build Spray Latex (Vinyl-acrylic flat for interior work), Bone, 339-03 (12-lb 9-oz)

Nitro-Tex Hi Build Lacquer Latex Interior Flat, Sapphire White, 343-01 (Same as first material above) (12-lb 7-oz)

Latex Quick Dry Prime Seal, White (for interior use) 20100 (11-lb 9-oz)

Alkyd Dulamel Semi-Gloss Enamel, White (for interior use) 20701 (10-lb 9-oz)

Impervo High Gloss Enamel, White (for exterior or interior use) 133-01 (10-lb 6-oz)

Regal Aquavelvet Latex, Eggshell Flat Enamel, White 31901 (11-lb 6-oz)

Latex Sani-Flat, White (12-lb 12-oz)

Ironclad Coatings Quick Dry Industrial (Alkyd) Enamel, Gloss White 07101 (Air or Bake Dry Production) (10-lb 0-oz)

Ironclad Retardo Rust Inhibitive Paint (Alkyd), Red 16320 (for interior or exterior use) (12-lb 0-oz)

Moorcraft Vinyl Latex Primer-Sealer Professional Coatings, White 25200 (for interior) (10-lb 14-oz)

Ironclad Coatings Sweep-up Airless Spray Alkyd Flat Finish, White 34701 (for interior use) (13-lb 2-oz)

Ironclad Coatings Sweep-up Airless Spray Eggshell Enamel Finish, White 34801 (for interior use) (14-lb 4-oz)

Ironclad Coatings Sweep-up Airless Spray Semi-Gloss Enamel Finish, White 34901 (for interior use) (9-lb 10-oz)

Ironclad Coatings Sweep-up Airless Spray Gloss Enamel Finish, White 29101 (for interior use) (9-lb 8-oz)

Moorcraft Professional Coatings Latex Satin Enamel, White 25501 (for interior use) (11-lb 13-oz)

Moorcraft Professional Coatings Satin Finish Enamel, White 25001 (for interior use) (10-lb 10-oz)

TABLE 2. COATING SYSTEMS PREPARATION

System No.	Material	Number	Coverage Sq ft/gal	Application
1	One coat, (3-mil dry) Hi Build Latex Flat	339-03	200	Spray
2	One coat, (3-mil dry) Nitro-Tex Latex Flat	343-01	200	Spray
3	1st Coat Quick Dry Prime Seal	20100	500	Brush
	2nd Coat Alkyd Dulamel	20701	500	Brush
	3rd Coat Alkyd Dulamel	20701	500	Brush
4	1st Coat Quick Dry Prime Seal	20100	500	Brush
	2nd Coat Impervo Hi Gloss Enamel	133-01	500	Brush
	3rd Coat Impervo Hi Gloss Enamel	133-01	500	Brush
5	1st Coat Quick Dry Prime Seal	20100	500	Brush
	2nd Coat Regal Aquavelvet Enamel	31901	400	Brush
	3rd Coat Regal Aquavelvet Enamel	31901	400	Brush
6	1st Coat Quick Dry Prime Seal	20100	500	Brush
	2nd Coat Latex Sani-Flat	20100	450	Brush
	3rd Coat Latex Sani-Flat	20100	450	Brush
7	1st Coat Quick Dry Prime Seal	20100	500	Brush
	2nd Coat Ironclad Quick Dry Ind. Enamel	07101	500	Brush
	3rd Coat Ironclad Quick Dry Ind. Enamel	07101	500	Brush
8	1st Coat Ironclad Retardo Rust Inhibitive Paint	16320	500	Brush
	2nd Coat Ironclad Retardo Rust Inhibitive Paint	16320	600	Brush
9	1st Coat Moorcraft Vinyl Primer Sealer	25200	400	Brush
	2nd Coat Ironclad Sweep-up Spray Flat	34701	400	Spray
10	1st Coat Moorcraft Vinyl Latex Primer Sealer	25200	400	Brush
	2nd Coat Ironclad Sweep-up Eggshell Enamel	34801	400	Spray
11	1st Coat Moorcraft Vinyl Latex Primer Sealer	25200	400	Brush
	2nd Coat Ironclad Sweep-up Semi-Gloss Enamel	34901	400	Spray
12	1st Coat Moorcraft Vinyl Latex Primer Sealer	25200	400	Brush
	2nd Coat Ironclad Sweep-up Gloss Enamel	29101	400	Spray
13	1st Coat Moorcraft Vinyl Latex Primer Sealer	25200	400	Brush
	2nd Coat Moorcraft Latex Satin Enamel	25501	500	Brush
	3rd Coat Moorcraft Latex Satin Enamel	25501	500	Brush
14	1st Coat Moorcraft Vinyl Latex Primer Sealer	25200	400	Brush
	2nd Coat Moorcraft Satin Finish Enamel	25001	550	Brush
	3rd Coat Moorcraft Satin Finish Enamel	25001	550	Brush

periodic tests with red oak flooring. This provided the zero and 100 references for flame spread, fuel contributed, and smoke density. Ignition over the burners was noted 50 seconds after the start of the test in the most recent calibration with red oak flooring. The specimen to be evaluated was tested in accordance with the standard procedure.

V. TEST RESULTS

The test results, calculated on the basis of observed flame travel and the areas under the recorder curves of furnace temperature and smoke density, are presented in the following table. In recognition of possible variations in results due to limitations of the test method, the numerical results are adjusted to the nearest figure divisible by 5.

Recorded data for flame spread, fuel contributed, and smoke density of one specimen (System No. 1) is shown in the figure at the end of this report as a solid line on each graph.

TABLE 3. CLASSIFICATION TABLE

Test Specimen	Flame Spread Rate	Fuel Contributed Factor	Smoke Density Factor
Asbestos-Cement Board	0	0	0
Red Oak Flooring	100	100	100
Coating System			
(Gypsum Substrate)			
1 339-03	10	0	0
2 343-01	15	0	5
(Asbestos-Cement Board Substrate)			
3 20100/20701/20701	0	0	0
4 20100/133-01/133-01	0	0	0
5 20100/31901/31901	0	0	0
6 20100/Sani Flat/Sani Flat	0	0	0
7 20100/07101/07101	0	0	0
8 16320/16320	0	0	0
9 25200/34701	0	0	0
10 25200/34801	0	0	0
11 25200/34901	0	0	0
12 25200/29101	0	0	0
13 25200/25501/25501	0	0	0
14 25200/25001/25001	0	0	0

VI. OBSERVATIONS DURING AND AFTER TEST

The observations made during and after the test are summarized in Table 4 Observations.

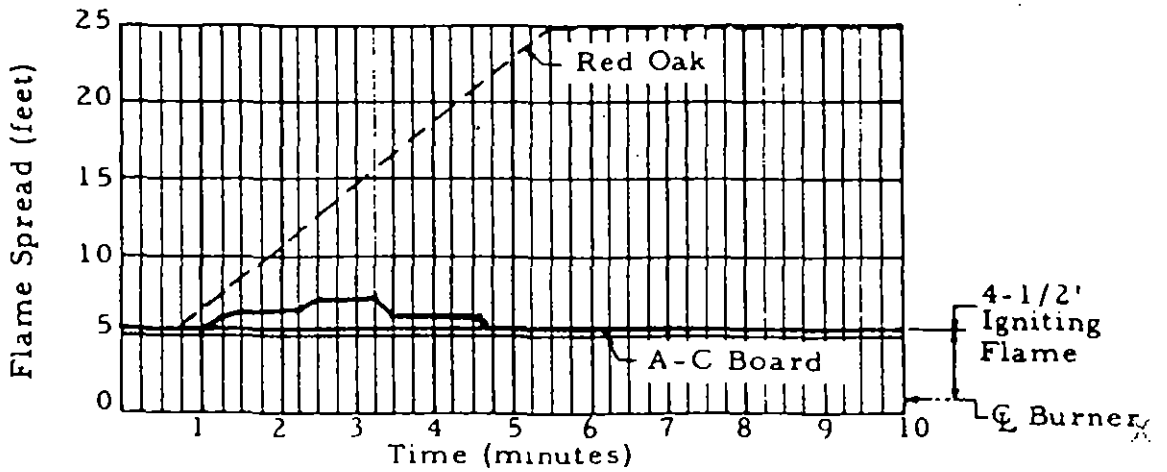
TABLE 4. OBSERVATIONS

Event

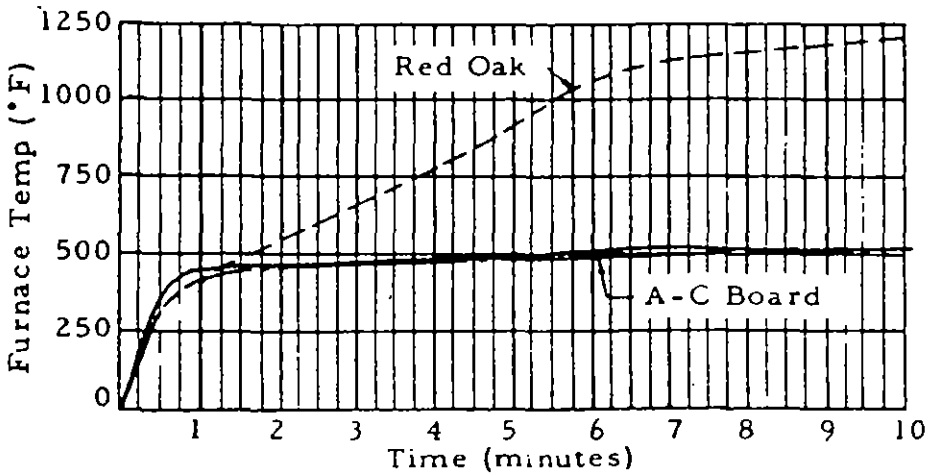
System	Discoloration, Sec	Ignition Sec	Blisters Sec	Peeling Min	Flame Advance, Ft
1	11	65		3	1-1/2
2	11	37	37		2-1/2
3	10	35	20	4-1/2	
4	12	40	25	2/3	
5	15		28		1/2
6	26				
7	15	30	25	2-3/4	
8	18	135			
9	14	60	165		
10	15	60	68		
11	10		19	4-1/2	
12	11		28	5	
13	20				
14	19	100	20	8-1/2	

Damage, Ft

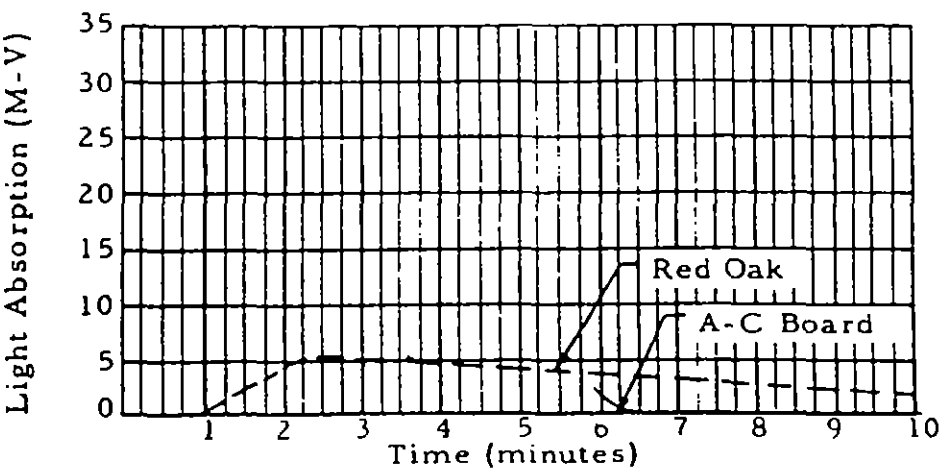
System	Char Through Coating	Blisters	Peeling	Surface Scorch
1	5-1/2			6-1/2
2	6			9
3	5-1/2	23	8-1/2	15
4	7	25	6	10
5	5-1/2	15		12
6	5-1/2			
7	5	22	5	11
8	4-1/2			5-1/2
9	5-1/2	10		5-1/2
10	5-1/2			10
11	5-1/2	22		10
12	5-1/2	16		7-1/2
13	5			5
14	6-1/2	24-1/2		8



FLAME SPREAD



FUEL CONTRIBUTION
(Furnace Temperature)



SMOKE DENSITY
(M-V Depression - Photocell)

SURFACE BURNING CHARACTERISTICS OF A WHITE COATING SYSTEM ON GYPSUM WALLBOARD, 339-03

CP-01

UNITED STATES TESTING COMPANY, INC.

185211
12/21/90

SGS

TEST RESULTS

B. Smoke Density per ASTM E-662

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	95	122	109
2	98	132	120
3	82	132	121
Average	92	129	117

Non-Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	22	241	236
2	20	237	234
3	18	249	247
Average	20	242	239

Legend:

Specific Optical Density: Ds
Maximum Specific Optical Density: Dm
Maximum Specific Optical Density Corrected: Dm Corr.

OBSERVATIONS

In the flaming mode, test specimens exhibited surface discoloration, charring, bubbling and melting of the pile yarn upon contact with the flame tiplets. Flaming drips were noted throughout the test period.
In the non-flaming mode, test specimens exhibited surface discoloration, charring, swelling, melting and bubbling upon exposure to the heat source.
In the flaming mode, maximum smoke evolution occurred at an average time of 10 minutes and in the non-flaming mode, 20 minutes.

Appr'd by MG

UNITED STATES TESTING COMPANY, INC. 185211 12/21/90

SGS

TEST RESULTS

A. Flammability per ASTM E-648

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Specimen Number	Burn Distance Centimeters	Critical Radiant Heat Flux, Watts/cm^2
1	39.0	0.54
2	34.0	0.63
3	36.0	0.59
Average	36.0	0.59

OBSERVATIONS

Discoloration and charring was observed in advance of the flame front on all specimens. Moderate smoke evolution was noted.

REQUIREMENTS

The 1988 Edition of the NFPA "Life Safety Code" provides the following classification for regulating interior flooring materials in specified occupancies:

CLASS I - Includes materials which have a minimum Critical Radiant Flux of 0.45 watts/cm^2.

CLASS II - Includes materials which have a minimum Critical Radiant Flux of 0.22 watts/cm^2.

Examples of the requirements for application of interior flooring material in exits and corridors for specified occupancies are listed below.

Health Care Centers
Class I in new facilities and for newly installed flooring materials in existing facilities.

Child Care Centers
Class I or II in both new and existing facilities.

Hotels and Dormitories
Class I or II in both new and existing facilities.

Apartments
Class I or II in both new and existing facilities.

Appr'd by MEe

UNITED STATES TESTING COMPANY, INC.

105211
12/21/90

SGS

B. ASTM E-662 SPECIFIC OPTICAL DENSITY OF SMOKE

PREPARATION AND CONDITIONING

The carpet sample was cut into six specimens 3" by 3" and prepared for testing as outlined in the aforementioned standard. Prior to insertion in the specimen holder, the specimens were dried for 24 hours at 140 ± 5°F and then conditioned to equilibrium at a temperature of 73 ± 5°F and a relative humidity of 50 ± 5%.

TEST PROCEDURE

The test chamber was preheated to 95 ± 4°F and all steady state conditions checked. Following placement of the specimen in the chamber and initiation of the test, light transmittance and time were plotted continuously with a multi-range recorder. The test, in the flaming and non-flaming mode, was continued for a minimum of 3 minutes after the recording of minimum light transmittance. The chamber was then evacuated of smoke particulate until maximum light transmittance was reached. That value was recorded as clear beam and is used in calculating the Maximum Corrected Specific Optical Density of Smoke.

Appr'd by

UNITED STATES TESTING COMPANY, INC. 185211
12/21/90

SGS

A. FLAMMABILITY PER ASTM E-648

PREPARATION AND CONDITIONING

The carpet sample material was cut into three sections 10" wide by 42" long and adhered to 1/4" inorganic reinforced cement board with a latex based adhesive.

Prior to clamping the floor covering system in the mounting frame, the specimens were conditioned at 21 ± 3°C and a relative humidity of 50 ± 5% and allowed to reach moisture equilibrium.

Note: Per the Client's request, the test specimens were adhered directly to the inorganic reinforced cement board substrates. Carpet sample was identified by the Client as material intended for direct glue down application.

TEST PROCEDURE

The test chamber was pre-heated for one hour and the radiant panel black body temperature verified to be within 5°C of the temperature established during calibration. The pilot burner was ignited and the specimen inserted into the chamber. After a two-minute pre-heat, the pilot burner flame was placed in contact with the specimen for ten minutes, then removed. The test was continued until all flaming ceased. The distance burned was measured and converted to Critical Radiant Heat Flux at flame out.

Appr'd by MEG

UNITED STATES TESTING COMPANY, INC. 185211
12/21/90

REFERENCES

1. Client's Purchase Order Number 32242 dated October 4, 1990.

2. Client's confirmation copy dated November 30, 1990.

TEST REQUEST AND METHOD

The submitted carpet sample was tested for (A) Flammability in accordance with the procedures outlined in ASTM Designation E-648, "Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source". This test method is comparable to NFPA No. 253, and (B) Smoke Density in accordance with the procedures outlined in ASTM Designation E-662, "Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials". This test method is comparable to NFPA No. 258.

SAMPLE IDENTIFICATION

The sample tested was submitted and identified by the Client as:

Carpet Quality:	38 oz. Cut and Uncut Texture Floor Covering
Construction:	Cut and Uncut Texture
Pile Yarn:	100% Antron Nylon
Tufted Yarn Weight:	38 oz./sq.yd.
Backing: Primary:	Woven Polypropylene
Secondary:	Action Bac
Overall Weight:	68 oz./sq.yd.
Overall Thickness:	0.35"

Appr'd by ME

United States Testing Company, Inc.
California Division

6555 TELEGRAPH ROAD, • LOS ANGELES, CALIFORNIA 90040 • (213) 723-7181
Laboratories In Principal Cities

308

REPORT OF TEST

ATLAS CARPET MILLS
2200 Saybrook Avenue
City of Commerce, CA 90040

FLAMMABILITY AND SMOKE EVALUATION
OF FLOOR COVERING MATERIALS

CARPET QUALITY:
38 OZ. CUT AND UNCUT TEXTURE

December 21, 1990

Dennis Trinidad

Dennis Trinidad
Test Technician

TEST REPORT NO. 185211
SIGNED FOR THE COMPANY

YUK LUN YEUNG

BY: Michael S. Elliott

Yuk Lun Yeung
Test Technician

Michael S. Elliott
Director/Fire Tech. Dept.

ma

S REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. NOTHING CONTAINED IN THIS REPORT SHALL MEAN THAT TED STATES TESTING COMPANY, INC., CONDUCTS ANY QUALITY CONTROL PROGRAM FOR THE CLIENT TO WHOM THIS TEST REPORT IS ISSUED. UNLESS SPECIFICALLY SPECIFIED, ... ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED AND THEY AND THE NAME OF THE UNITED STATES TESTING COMPANY,

ecifications Governing the Flammability of Carpets

These specifications apply to car- s and carpet assemblies when us- only as a floor covering. Carpeting emblies include the carpet, its un- lay, and adhesives which when ted as a composite shall be repre- ntative of the proposed installation.

Carpet and carpeting assemblies ll not be installed in stairways de- ned for exiting to meet building le requirements

All carpets and underlayments ll pass the Methanine Pill Test, De- tment of Commerce Standard FF 0.

Carpet and carpeting assemblies ll be tested by the Standard Test hod for Critical Radiant Flux of or Covering Systems Using a Radi- Heat Energy Source. ASTM E- -78. The time frame for this procedure may be limited to a 15 minute exposure.

a) Carpet and carpeting assemblies representative of the actual installation on floors of corridors, exitways (except exit stairways), and exit passageways shall have a minimum critical radiant flux of 0.5 watts per square centimeter (W/cm²).

b) Carpet and carpeting assemblies representative of the actual installation on floors of general areas shall have a minimum critical radiant flux of 0.4 W/cm².

5. Carpet and carpeting assemblies shall be tested using the Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials ASTM E662-79.

The smoke developed ratings in either the flaming or non-flaming mode shall not exceed 300 within the first 4 minutes of the test.

6. The manufacturer of the carpet and carpeting assemblies is required to submit a certification, by a recognized independent laboratory, showing the complete test data results, prior to final acceptance.

The certification shall state that the material is treated for fire resistance and shall indicate the service life of the treatment or that the material is inherently fire resistant by virtue of its construction, chemical properties and/or composition. Materials which are not inherently fire resistant may be used only when the certified fire resistant service life exceeds that of the planned service life of the carpet and carpeting assemblies with consideration being given to cleaning, traffic, and other conditions of use which may affect the treatment.

---

ecifications Governing the Flammability of Drapery and Curtain Materials

ll drapery and curtain materials, uding linings, shall be subject to vertical flame test as required by eral Aviation Administration (FAA) ulation 25.853 (b) and Appendix F d May 1, 1972.

he test method requires that the e shall be applied for 12 seconds then removed, that the average length shall not exceed 8 inches. the average flame time after re- al of the flame source shall not ed 15 seconds, and that drip- s from the test specimen shall continue to flame for more than 5 onds after falling.

he manufacturer of the finished shall submit written certification each component fabric of the completed items as follows:

a) If the material contains 100% fibers that are inherently flame resistant by virtue of the physical properties of the untreated fiber, a written certification by a recognized independent testing laboratory, attesting to the permanent flame resistant properties of all the fibers within, shall be submitted to the Port Authority.

b) If the material contains fibers which are not inherently flame resistant in the untreated state, a written certification by a recognized independent testing laboratory shall be submitted to the Port Authority, attesting that the treated materials have maintained their flame resistant properties, as determined by the burn test in Section 1, after 5 washings and/or dry cleanings. The washing test procedure shall be performed as defined by the Technical Manual of the American Association of Textile Chemists and Colorists (AATCC) Test Method 124-1978 using the wash temperature of 120° ± 5F° and the "Tumble Dry" procedure. The dry cleaning test procedure shall be performed by subjecting the material to dry cleaning in a "Coin-Op" machine as manufactured by Norge or Westinghouse or an equal machine. The size sample of material and the machine size are to be commensurable to each other. When necessary, dummy pieces of material shall be added to the test specimens to make up a load equal to the machine rating.

Revised April 1981

Fay 947-6 49 CT-01,02,03 CB-01

Material Safety Data Sheet

QUICK IDENTIFIER (Common Name)

Manufacturer's Name	American Olean Tile Co., Inc.	Emergency Telephone No.	(215) 855-1111
Address	1000 Cannon Avenue Lansdale, PA 19446	Other Information Calls	(215) 855-1111
Signature of Person Responsible for Preparation	Kei Chi	Date Prepared	5/86

SECTION 1 - IDENTITY

Common Name: (used on label) (Trade Name & Synonyms)	Glazed Ceramic Tiles	Cas No.	Not established
Chemical Name	NA	Chemical Family	NA
Formula	NA		

SECTION 2 - HAZARDOUS INGREDIENTS

Principal Hazardous Component(s) (chemical & common name(s)) | % | Threshold Limit Value (units)

Glazed Ceramic Tiles-------- are considered as articles, therefore, they are exempted from OSHA Hazard Communication Standards. However, during cutting or saw ceramic tiles, dusts containing free silica may be released. Under such circumsta the threshold exposure limit is $\frac{10\ mg/m3}{\%\ SiO2\ +\ 2}$ for respirable dust.

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS (Fire & Explosion Data)

Boiling Point	NA	Specific Gravity (H_2O=1)	Not Available	Vapor Pressure (mm Hg)	NA
Percent Volatile by Volume (%)	NA	Vapor Density (Air = 1)		Evaporation Rate (___ = 1)	NA
Solubility in Water	Insoluble	Reactivity in Water	None		
Appearance and Odor	Glazed Ceramic Tiles----------with no odor.				

Flash Point	None	Flammable Limits in Air % by Volume	Lower NA	Upper NA	Extinguisher Media: No fire hazard; Auto-Ignition Temperature: NA
Special Fire Fighting Procedures	None				
Unusual Fire and Explosion Hazards	None				

SECTION 4 - PHYSICAL HAZARDS

Stability Unstable ☐ Stable ☒ Conditions to Avoid: None known

Incompatability (Materials to Avoid): None known

Hazardous Decomposition Products: None known

Hazardous Polymerization May Occur ☐ Will Not Occur ☒ Conditions to Avoid: None Known

SECTION 5 - HEALTH HAZARDS

Threshold Limit Value: See Section 2

Signs and Symptoms of Exposure 1. Acute Overexposure: None

2. Chronic Overexposure: None

Medical Conditions Generally Aggravated by Exposure: None

Chemical Listed as Carcinogen or Potential Carcinogen — National Toxicology Program Yes ☐ No ☒ — I.A.R.C. Monographs Yes ☐ No ☒ — OSHA Yes ☐ No ☒

OSHA Permissible Exposure Limit: NA — ACGIH Threshold Limit Value: NA — Other Exposure Limit Used: NA

Emergency and First Aid Procedures

1. Inhalation: NA

2. Eyes: If dust or chips get into eyes, flush with clean water for 15 minutes. If irritation is present after washing, get medical attention.

3. Skin: NA

4. Ingestion: Non-toxic

SECTION 6 - SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Above TLV as described in Section 2, use a respirator approved by NIOSH for dust

Ventilation — Local Exhaust: If TLV is exceeded — Mechanical (General) — Special — Other: usually not necessary.

Protective Gloves: Non-essential — Eye Protection: Non-essential, but desirable

Other Protective Clothing or Equipment: Non-essential

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: None

Other Precautions: None

Steps to be Taken in Case Material is Released or Spilled: Scoop up and place in container for disposal.

Waste Disposal Methods: To landfill in accordance with local, state, and federal regulations.

IMPORTANT
Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

ATC-01

Armstrong

June 6, 1991

Mr. Steven Brooks, Architect
DePolo Dunbar Architects
330 West 42nd Street
New York, NY 10036

Dear Mr. Brooks:

Subject: Item #589, Beveled Tegular Cirrus, 24" x 24" x 3/4" Beveled Tegular Lay-in Ceiling Tile
World Trade Center
New York, NY
April, 1991

Armstrong Item #589, manufactured at Pensacola, is authorized to use the appropriate Classification Marking of Underwriters Laboratories, Inc. (UL). As per page 40 and 41 of the UL Building Materials Directory 1991, this Marking, identified as Type "XLD," indicates the following Surface Burning Characteristics:

Flame Spread	25
Smoke Developed	10

This product is manufactured in the United States of America.

Very truly yours,

Sandra T. Miller

Sandra T. Miller
Customer Service Representative
Architectural Building Products Division

KAS

NOTE: Regarding Toxicity numbers, New York Department of State has assigned to our Product #589, an LPR (List Pending Review) #110-503.

UNDERWRITERS LABORATORIES INC.
333 PFINGSTEN ROAD · NORTHBROOK, ILLINOIS 60062
an independent, not-for-profit organization testing for public safety

August 20, 1981

R3407

Armstrong World Industries, Inc.
Research and Development Center
Lancaster, PA 17604

Attention: Mr. D. C. Ziegler
Technologist

Dear Mr. Ziegler:

This will confirm our August 18, 1981 conversation regarding the fact that the only evidence supplied by Underwriters Laboratories Inc. to identify finished products produced under the Classification and Follow-Up Service Program is the appearance of the Classification Mark (Label) of Underwriters Laboratories Inc. attached to the finished product showing the Surface Burning Characteristics (fire hazard) Classification applicable to the product.

Very truly yours,

William S. Metes

WILLIAM S. METES
Executive Staff Engineer
Fire Protection Department

WSM:bg

Armstrong

MATERIAL SAFETY DATA SHEET

Armstrong World Industries, Inc.
Human Resources Department
313 West Liberty Street., P. O. Box 3001
Lancaster, PA 17604
Telephone (717) 396-2328 or 396-2935

Division: Building Products Division

Issued By: Corporate Employment Practices

Date: 01/21/91 (replaces 12/12/90)

NFPA 704: (0 = no hazard; 4 = severe hazard)
Health = 0
Fire = 0
Reactivity = 0

N/A = Not Applicable or Not Available
N/K = None Known or Not Known

Dept. of Transportation Information
Shipping Name: Not Classified
Hazard Class: N/A
ID#: N/A

I. Product Information

A. Product Name: Armstrong Mineral Fiber Ceilings, Acoustical Materials, & Partition Panels

B. Chemical Name and Synonyms: N/A

C. Chemical or Product Family: Mineral Wool Fiber

II. Ingredient Information

Ingredients	C.A.S. No.	%	PEL/TLV
Mineral Wool Fiber	N.A.	20-60	3 fibers/cc - NIOSH recommendation 5 mg/m^3 - Nuisance Respirable - OSHA 10 mg/m^3 - Nuisance Total - ACGIH
Hydrous Aluminum Silicate	1332-58-7	20-40	Resp. Dust = $\frac{10}{\%SiO_2+2}$ NIOSH = .050mg/m^3 ACGIH = .1mg/m^3

This product formulation does not contain asbestos.

III. Physical Data

A. Appearance and Color: Gray, pressed fibrous panel of various colors
B. Boiling Point (degrees F): N/A
C. Vapor Pressure (mm Hg 20 degrees C): N/A
D. Vapor Density (Air = 1): N/A
E. Solubility in Water: N/A
F. Specific Gravity (H_2O = 1): N/A
G. Percent Volatile by Weight (30 min. @ 275 degrees F): N/A
H. Evaporation Rate (Butyl Acetate = 1): N/A
I. pH: N/A

IV. Fire and Explosion Data

A. Flash Point: N/A
B. Flammable Limits: LEL = N/A; UEL = N/A
C. Extinguishing Media: Water fog, dry chemical ABC rated
D. Special Fire Fighting Procedures: None
E. Unusual Fire and Explosion Hazards: None

WT-02

UNITED STATES TESTING COMPANY, INC.
California Division
5555 Telegraph Road, Los Angeles, California 90040
Telephone: (213) 723-7181 • Telex: 35-0025 • Fax: (213) 722-8251

REPORT OF TEST

CLIENT: LEVOLOR CORPORATION
595 Laurence Expressway
Sunnyvale, CA 94086

183829-10
8/3/90

SUBJECT: **FLAMMABILITY OF WINDOW COVERING MATERIAL**

REFERENCE:
Client's letters dated 5/10/90, 6/7/90 and 6/27/90 all signed by Bob King.

SAMPLE IDENTIFICATION:
One sample of window covering material submitted and identified by the Client as:

Description: Acrylic Coated Aluminum

TEST REQUEST AND METHODS:
Flammability evaluations in accordance with procedures outlined in:

1. NFPA 701 (Small Scale Test) - Standard Methods of Fire Tests for Flame-Resistant Textiles and Films, 1989 Edition.
2. UL 214 (Small Flame Test) - Standard for Tests for Flame-Propagation of Fabrics and Films.

SIGNED FOR THE COMPANY

Norma C. Trinidad
N.C. Trinidad
Ass't Manager
Mat./Tex. Dept.

H. F. Yeung
H.F. Yeung
viw Senior Analyst

Laboratories in: New York • Chicago • Los Angeles • Richland • Tulsa • Modesto •

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Form 804

A Member of the SGS Group (Société Générale de Surveillance)

TABLE I

Flammability per NFPA 701 - 1989 Edition
Small Scale Test, Original Condition
Sample: Acrylic Coated Aluminum

Direction & Specimen No.	After Flame (Seconds)	Falling Residues, Drips & Afterglow (Seconds)	Char Length (Inches)	Compliance
Lengthwise: 1	0.0	None	0.0	Passed - flammability requirements of NFPA 701 (Small Scale Test)
2	0.0	None	0.0	
3	0.0	None	0.0	
4	0.0	None	0.0	
5	0.0	None	0.0	
Avg.	N/A	None	0.0	

Requirements*: (Max.)

Individual Specimen	2.0 sec.	N/A sec.	4.5 in.
Avg. of 10 Specimens	N/A sec.	0.0 sec.	3.5 in.

Note:
* For curtain and drapery fabric/material weighing: >10.0 oz./sq.yd.
Actual Sample Weight: 20.9 oz./sq.yd.

Appr'd hcf

TABLE II

Flammability per UL 214, Small-Flame Test
Sample: Acrylic Coated Aluminum

Direction & Specimen No.	After Flame (Seconds)	Falling Residues, Drips & Afterglow (Seconds)	Char Length (Inches)	Compliance
Lengthwise: 1	0.0	None	0.0	Passed - Flammability requirements of UL 214 (Small Flame Test)
2	0.0	None	0.0	
3	0.0	None	0.0	
4	0.0	None	0.0	
5	0.0	None	0.0	
Avg.	N/A	N/A	0.0	

Requirements: (Max.)

Individual Specimen	2.0 sec.	0.0 sec.	4.5* in.
Avg. of 10 Specimens	N/A sec.	N/A sec.	3.5*in.

Note:
* Based on weight of fabric/material weighing: >10.0 oz./sq.yd.
Actual Sample Weight: 10.9 oz./sq.yd.

Appr'd

TABLE IV

Flammability per City of New York Standards and Appeals, 10/29/64
Sample: Acrylic Coated Aluminum

Direction & Specimen No.	After Flame (Seconds)	Afterglow (Seconds)	Flashing	Compliance
Lengthwise: 1	0.0	0.0	None	Passed - Flammability requirements of the City of New York, Standards and Appeals.
2	0.0	0.0	None	
3	0.0	0.0	None	
Avg.	0.0	0.0	N/A	
Requirements: (Max.)				
Individual Specimen	N/A	N/A	No Flashing	
Average	3 sec.	20 sec.	N/A	

Appr'd

SGS

TABLE V

Flammability per State of California
Title 19, Section 1237, Paragraph (b)
Small Scale Test, Original Condition
Sample: Acrylic Coated Aluminum

Direction & Specimen No.	After Flame, Seconds	Afterglow (Seconds)	Compliance
Lengthwise: 1	0.0	0.0	Passed - Flammability requirements of State of California, Title 19, Section 1237, Paragraph (b) (Small Scale Test)
2	0.0	0.0	
3	0.0	0.0	
Avg.	0.0	0.0	

Requirements:

Average, max.	4 sec.	6 inches

Appr'd NCT

SENT BY: LEVOLOR CORP 8-11-91 ; 3:49PM ; LEVOLOR PDC-212 947 7749 ; PAGE 6

PT-01

Devoe Paint

FLAME SPREAD RATINGS
General Information

With the accent on safety today by government authorities concerning hospitals, nursing homes, housing, government health and welfare facilities and homes for the elderly, more attention is being paid to the burning characteristics of paints applied to interior surfaces. The specification of fire retardant coatings has become a problem in many areas of the United States. In many cases fire ratings are misunderstood. In other cases fire ratings of paints on non-combustible surfaces are interpreted, mistakenly, as being the same over combustible surfaces.

The National Fire Prevention Association (NFPA) has established three categories which rate surfaces according to the relative degree with which flames spread over a surface, if one part of that surface is subjected to flame. These categories are:

Class A:	Flame Spread Rating	0-25
Class B:	Flame Spread Rating	26-75
Class C:	Flame Spread Rating	76-250

These represent the rate relative to the flame spread on red oak. Tests are generally run on a test described as a "tunnel test" under ASTM-E84-86, which is the same as UL-723, NFPA 255, UBC-42-1 and ANSI-2.5. In addition to measuring the SPREAD OF FLAMES, this test measures SMOKE DENSITY.

As far as paint usage is concerned, two general categories of surfaces should be considered:

1. COMBUSTIBLE SURFACES *(such as wood, cellulose tile, etc.)*

These surfaces are rapidly consumed by fire. To provide some protection and allow time for evacuation of such areas, special paint coatings are required. These surfaces require the use of an intumescent-type coating (coating swells upon contact with flame and provides an insulating layer which retards the spread of flames.) Contact your nearest Devoe representative for information concerning available fire retardant intumescent coatings.

2. NON-COMBUSTIBLE SURFACES *(such as concrete, brick, plaster, drywall, block, cement-asbestos, metal, etc.)*

These surfaces do not burn themselves and, thus, require only decorative coatings which do not contribute to the fire hazard.

A wide variety of Devoe paints were tested on a non-combustible surface and provided a Class A Flame Spread Rating and acceptable ratings for smoke density and fuel contributed. These tests were run in accordance with ASTM Designation E84-86 "Standard Method of Test for Surface Burning Characteristics of Building Materials." The test results over non-combustible surfaces are shown in the tables below:

SURFACE BURNING CHARACTERISTICS
Non-Combustible Surfaces

Product	Flame Spread Rating	Fuel Contributed Factor	Smoke Density Factor
WONDER-TONES™ Latex Flat (36XX)	0	0	0
WONDER-TONES Latex Satin (35XX)	0	0	0
VELOUR® Alkyd Flat (21XX)	0	0	0
VELOUR Alkyd Semi-Gloss (26XX)	0	0	0
MIRROLAC® Alkyd Gloss (70XX)	0	0	0
SPRA-MAX-40™ Latex High Build (45401 & 45301)	5	0	0
TRU-GLAZE-4™ Epoxy Coating (124XX)	5	0	5
TRU-GLAZE-WB Water Based Epoxy Coating (129XX)	5	-	15
TRU-GLAZE® Clear Super Gloss Coating (11561/11569)	5	0	10
WONDER WOODSEALER® Clear (4900)	5	0	0

Based on these tests on representative Devoe Paint products conducted by Southwest Research Institute and data contained within the Technical Division Scientific Circular No. 801, entitled "Flammability of Paint Study", published by the National Paint and Coatings Association, Inc., these Devoe standard paints provide a CLASS A (0-25) FLAME SPREAD RATING when applied to a NON-COMBUSTIBLE surface. Contact your Devoe representative regarding flame spread characteristics of any other Devoe paint products.

DEVOE & RAYNOLDS CO.
Division of Grow Group, Inc.

9p PAINTING MATERIALS

3-4

Devoe Paint

WONDER-TONES™
Interior Latex Flat Wall Paint
#36XX

DESCRIPTION

A premium quality, latex flat paint for interior walls and ceilings in residences, offices, hotels, motels, hospitals, schools, and factories. Can be used on plaster, drywall, brick, masonry, concrete block and primed metal or wood.

Devoe performance alternate for Federal Specifications: TT-P-29J, TT-P-1728A.

FEATURES

- Durable flat finish
- Flat, uniform sheen
- Excellent hiding
- Non-yellowing
- Resists staining
- Low odor
- Washable
- Excellent roller spatter resistance
- Soap and water clean-up

COMPOSITION

Polyvinyl Acetate - Acrylic Resin

Pigmentation varies with color

Meets Federal Regulations for lead and other heavy metals and existing air pollution laws.

SPECIFICATION DATA

Solids: Volume - 34% (varies with color)
Weight - 48% (vaires with color)

Practical Coverage:
400 sq. ft. per gallon-enough for walls in a 12 X 13 ft. room.

Flash Point: Non-flammable

Dry Time @ 77°F. & 50% R.H.:
Tack Free - 1/2 hour
To recoat - 2 hours

Shelf Life: Over 1 year

Color: White, ready-mix colors, custom colors

Finish: Flat (1 unit @ 85°)

Reflectance: 86.5% + 0.8% (White)

Clean-up Solvent: Soap and water

Density: 10.9 lbs/gal. (varies with color)

Recommended Film Thickness:
4.0 mils wet
1.2 mils dry (454 Theo. sq. ft./gal. coverage)

VOC (white):
1.55 lbs/gal.
(185 grams per liter)

PERFORMANCE DATA

Property	Test Method	Results
Scrubbability	ASTM D2486	Excellent: > 400 cycles
Washability	6141-Fed. Std. 141B, 100 Cycles	Very Good: Soil Substantially Removed, > 92% of Original Reflectance Retained
Flexibility	ASTM D1737, 180° Bend, 1/4" Mandrel	Excellent: No Cracking or Flaking
Dry Opacity (Hiding)	ASTM D2805 - 1.25 dry mils	Excellent: 0.97
Freeze-Thaw Resistance	3 Cold/Heat Cycles - 16 Hrs. @15°F/8 Hrs. @77°F	Excellent: +2 K.U. Change
Accelerated Yellowing	6132 - Fed. Std. 141B	Excellent: Yellowness Index Difference -0.02
Anchorage (Adhesion)	Fed. Spec. TT-P-29J, Par. 4.4.7	Excellent: No Removal or Loosening
Water Resistance	Fed. Spec. TT-P-29J, Par. 4.4.11	Excellent: No Change
Alkali Resistance	Fed. Spec. TT-P-29J, Par. 4.4.12	Excellent: No Change
Flame Spread Rating	ASTM E84 (non-combustible surface)	Excellent: O (Class A)

DEVOE & RAYNOLDS CO.
Division of Grow Group, Inc.

9p PAINTING MATERIALS

4-4

SURFACE PREPARATION

l surfaces must be sound, clean, free of oil, grease, and reign matter.

ew Surfaces: DRYWALL - Prime with this paint or evoe primer 50801, 51701 or 55201 MASONRY - Cure least 30 days before painting. Prime with this paint or evoe primer 50801, 51701 or 55201 CONCRETE LOCK - Fill with Devoe latex filler 52901 or 55901. OOD - Set nails, fill with vinyl spackle. Prime with evoe latex enamel undercoat 51701 or alkyd 8801. ETAL - Prime with Devoe metal primer 13201.

Previously Painted Surfaces: Dull glossy areas by light sanding. Wash any areas that may have grease or oil. Remove loose paint. Prime bare areas with primer specified under **New Surfaces**. Porous flat finishes should be sealed with this paint or Devoe latex primer 50801 or 51701.

MIXING AND THINNING

inting: Tint only the bases with WONDER TINT® olorants per the COLOR KEY™ Formula.

Thinning: No thinning required.

APPLICATION

ethod: Brush, roller or spray. For airless spray use a .015" tip. ljust pressure as needed. Do not apply when the surface or air nperature is below 50°F. Provide good ventilation and warmth normal drying. For best hiding, tint primers toward finish coat lor. Certain colors such as yellow, orange and pink may require ultiple coats.

Dry Time: At 77°F. & 50% R.H. dries to touch in 1/2 hour to recoat in 2 hours. Low temperature or high humidity increases these times.

Clean-Up: Use warm, soapy water

Washing Instructions: Allow at least 7 days after application before washing. Use non-abrasive, mild detergent and cellulose sponge.

PRECAUTIONS

EEP FROM FREEZING! WARNING! HARMFUL IF INHALED. SEE ABEL OR MSDS FOR LIST OF HAZARDOUS INGREDIENTS. KEEP UT OF REACH OF CHILDREN.

lay cause eye, skin, nose and throat irritation.

ontains Crystalline Silica which can cause lung damage and cancer. Risk depends on duration and level of exposure.)

se only with adequate ventilation. Do not breathe vapors, spray mists r sanding dusts. If indoors, open windows and doors to ensure ontinuous flow of fresh air during mixing, application, drying and anding. When spray applying or if you experience eye watering, eadaches or dizziness, increase fresh air or wear respiratory protection NIOSH/MSHA TC23C or equivalent), or leave the area. Adequate entilation required when sanding or abrading the dried film. If dequate ventilation cannot be provided, wear an approved particulate espirator (TC21C or equivalent). Follow respirator manufacturer's irections for respirator use. Do not get in eyes, on skin or on clothing. lse safety eyewear with splash guards. Do not take internally.

IRST AID: If you experience difficulty in breathing, leave the area to btain fresh air. In case of eye contact, flush with large amounts of water or at least 15 minutes. Get medical assistance. In case of skin contact, ash area thoroughly with soap and water. Remove soiled clothing. Get edical assistance if irritation persists. Wash clothing before reuse. If swallowed DO NOT INDUCE VOMITING. Get medical assistance immediately.

Keep container closed when not in use. Do not store above 110°F. Keep from freezing. Do not transfer contents to bottles or other unlabeled containers. In case of spillage, absorb with inert material. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations. Do not incinerate closed containers. In case of fire use CO_2, Dry Chemical, Foam or other approved method for treating a Class B fire. Do not use water. Summon professional fire-fighters.

See Material Safety Data Sheet for complete Safety and Precautionary requirements.

SHIPPING

reight Classification: Paint

ackaging: 1 quart (0.946L)
1 gallon (3.785L)
5 gallons (18.925L)

Shipping Weights: (varies with color)
6 quart case - 19 lbs. (8.6 kg)
4 gallon case - 49 lbs. (22. kg)
5 gallon can - 61 lbs. (27.7 kg)

38XX-2/90

OTE. To the best of our knowledge, the information contained herein is accurate. However, Devoe & Raynolds o. assumes no liability whatsoever for the accuracy or completeness of the information contained herein. Final termination of the suitability of any information or material for the use contemplated, the manner of use and hether there is any infringement of patents is the sole responsibility of the user.
ditional information and prices may be obtained through your local Representative, Devoe Branch or

DEVOE & RAYNOLDS CO.
P. O. Box 7600
Louisville, Kentucky 40207
(502) 897-9861
Division of Grow Group, Inc.

VT-01

Azrock

Azrock Industries Inc. • Founded 1912 • 10999 IH-10 West • P.O. Box 696000 • San Antonio, Texas 78269 • 512/558-6400 • Fax: 512/558-6614

June 12, 1991

FAX 212/947-6749

Depaolo - Dunbar Architects
Attention: Mr. Stephen Brooks

RE: Cedel Project
World Trade Center
New York, NY

Post-It™ brand fax transmittal memo 7671	# of pages ▸ 6
To Stephen Brooks	From David Voll
Co. Depaolo-Dunbar	Co. Azrock Ind.
Dept.	Phone #
Fax #	Fax #

Gentlemen:

We are listing the information you requested on Azrock Vinyl Composition Tile regarding flame spread, flame contribution and smoke density.

Azrock Vinyl Composition tile is manufactured to have a Flame Spread Rating well under 75 when tested in accordance with ASTM E 84 Tunnel Test, "Standard Method of Test for Surface Burning Characteristics of Building Materials". Also, the last ASTM E 84 Tunnel Test on Azrock Vinyl Composition Tile showed a Flame Contribution Factor of 0 which is typical.

Further, Azrock Vinyl Composition Tile in 1/8", 3/32" or 1/16" gauge is manufactured to have a flame propagation index of less than 2.0 when tested in accordance with the provisions of Underwriters Laboratory Chamber Test No. 992, "Test for Flame Propagation in Classification of Flooring and Floor Covering Materials." An independent laboratory has performed each of these tests.

HEW Flame Spread requirements in Hill Burton regulations are as follows:

E 84 Tunnel Test	Flame Spread	75 Max	
	Smoke Density	350 Max	
	or the		
U.L. 992 Chamber Test	Flame Spread	2.0 Max	NBS
Aminco Test	Smoke Density	250 Max	
	(average of 2 tests)		

Azrock Vinyl Composition Tile was tested under ASTM E 648 (Standard Test Method for Critical Radiant Flux of Floor Covering Systems using a Radiant Heat Energy Source) with test results CRF (Critical Radiant Flux) of more than 1.0. This also qualifies it for a Class I rating for flame spread.

The above data is provided as a measurement and as a means of describing the properties of Azrock Vinyl Composition Tile when subjected to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of this product under actual fire conditions.

All Azrock Vinyl Composition Tile has exceptional fire resistance. There has never been a fire in which any Azrock Floor Tile has been found to contribute to flame spread or fire hazard since we began manufacture in 1932.

Respectfully,

David R. Voll
Customer Relations Manager

DRV/dw

This report is for the information of the Sponsor. It may be used in its entirety for the purpose of securing product acceptance from duly constituted approval authorities, however, this report or the name of the Institute shall not be used in publicity or advertising.

SOUTHWEST RESEARCH INSTITUTE
Department of Fire Technology
POST OFFICE DRAWER 28510 6220 CULEBRA RD. SAN ANTONIO, TEXAS 78284

INVESTIGATION OF SURFACE BURNING CHARACTERISTICS OF:

A VINYL COMPOSITION FLOOR TILE: V-824-3

PROJECT NO. 01-1373-068-b

FINAL REPORT

DECEMBER 11, 1986

Prepared for:
AZROCK INDUSTRIES, INCORPORATED
P. O. BOX 34030
SAN ANTONIO, TEXAS 78265

By:

Carl A. Hafer, P. E.
Manager
Standard Testing Services

Approved by:

Dr. Gordon E. Hartzell
Director, Fire Technology
for
Dr. Robert E. Lyle
Vice President
Chemistry and Chemical Engineering

TABLE 1. DESCRIPTION

Type:	Vinyl composition tile per Federal Spec. SS-T-312b Type IV, Composition 1 - Asbestos-free
Trade Name:	Azrock Vinyl Composition Tile
Identification No.:	V-824-3, 6313009, 3229 and 3201
Color:	Tan with Beige, Brown and White Chips
Backing(s):	None
Construction:	The tile is composed of a thermoplastic binder, mineral fillers and pigments. The binder consists of either polyvinyl chloride resins or a copolymer resin compounded with suitable plasticizers and stabilizers.
No./Size Received:	90 pieces, 12 x 12 in. (0.31 x 0.31 m)
Thickness:	0.125 in. (3.175 mm)
Total Weight:	121.5 lb (55.16 kg)
Unit Weight:	1.35 lb/ft^2 (6.58 kg/m^2)
Substrate Used:	0.25-in. (6.35-mm) glass-reinforced-cement board
Adhesive Used:	Tile-Grip-Roll-On Brush-On Waterproof Tile Cement No. 9 Manufactured by Norton Specialties Company, Norton, Massachusetts.

III. PREPARATION AND CONDITIONING OF TEST SPECIMEN

The 21-in. x 25-ft (0.53 x 7.63-m) specimen was prepared using four 21 x 75-in. (0.53 x 1.91-m) sections of glass-reinforced-cement board coated with the Client's specified adhesive. The tiles, 48 in number, were cut to fit where necessary and pressed into place on the substrate. A 14 x 21-in. (0.36 x 0.53-m) section of 16-ga (1.6-mm) sheet metal was placed over the burner and under the leading edge of the first section to deter flame impingement on the unexposed surface in accordance with the test procedure.

The specimen was conditioned for 21 days in an atmosphere maintained between 68 and 78°F (20 and 26°C) temperature and 45- to 55-percent relative humidity.

IV. TEST PROCEDURE

The test was conducted on December 5, 1986. Reference data were obtained and furnace operation checked by conducting a 10-minute test with glass-reinforced-cement board on the day of the test and by periodic tests with red oak flooring. These tests provided the 0 and 100

references for flame spread, fuel contribution, and smoke developed. Ignition over the burners was noted 37 seconds after the start of the test in the most recent calibration with red oak flooring. Each specimen to be evaluated was tested in accordance with the standard procedure.

V. TEST RESULTS

The test results were calculated on the basis of observed flame travel and the measurement of areas under the recorder curves of furnace temperature and smoke developed (see Table 2). To allow for possible variations in results due to limitations of the test method, the numerical results were adjusted to the nearest figure divisible by 5.

Recorded data for flame spread, fuel contribution, and smoke developed for the specimen are shown in the figures at the end of this report as a solid line on each graph.

TABLE 2. CLASSIFICATION

Test Specimen	Flame Spread Index E84-84	Fuel Contribution	Smoke Developed
Glass-Reinforced-Cement Board	0	0	0
Red Oak Flooring	100	100	100
A Vinyl Composition Floor Tile:			
V-824-3	10	0	130

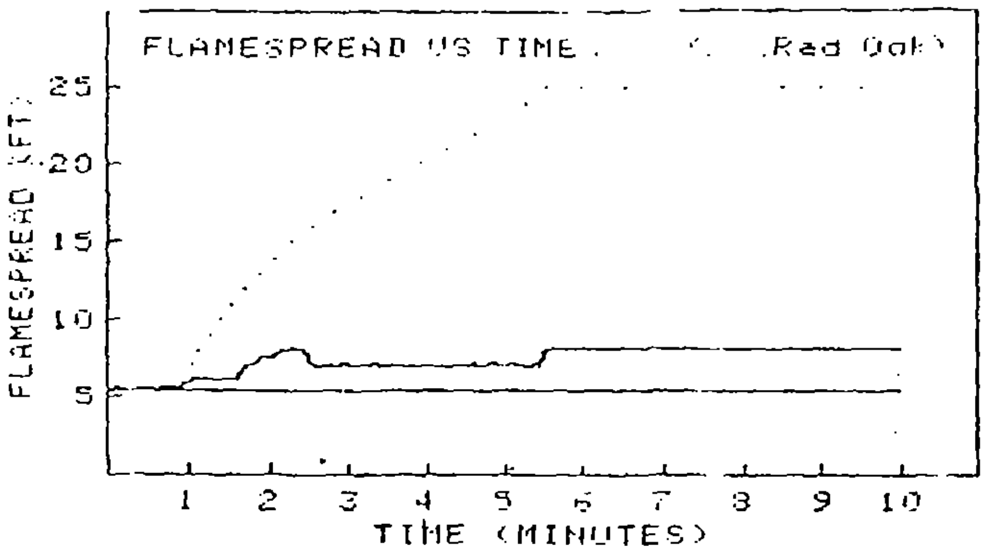
VI. OBSERVATIONS DURING AND AFTER TEST

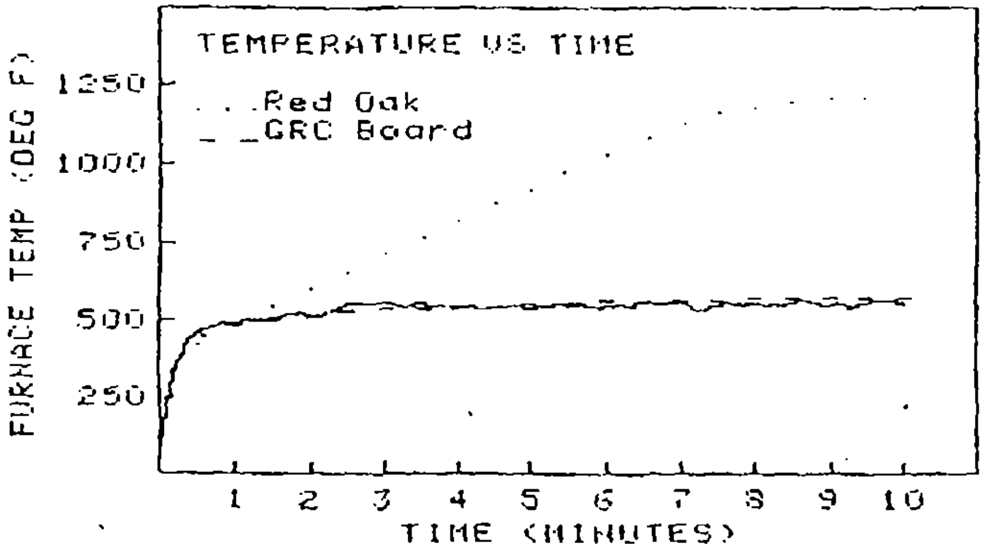
Observations made during and after the test are presented in Table 3 on the following page.

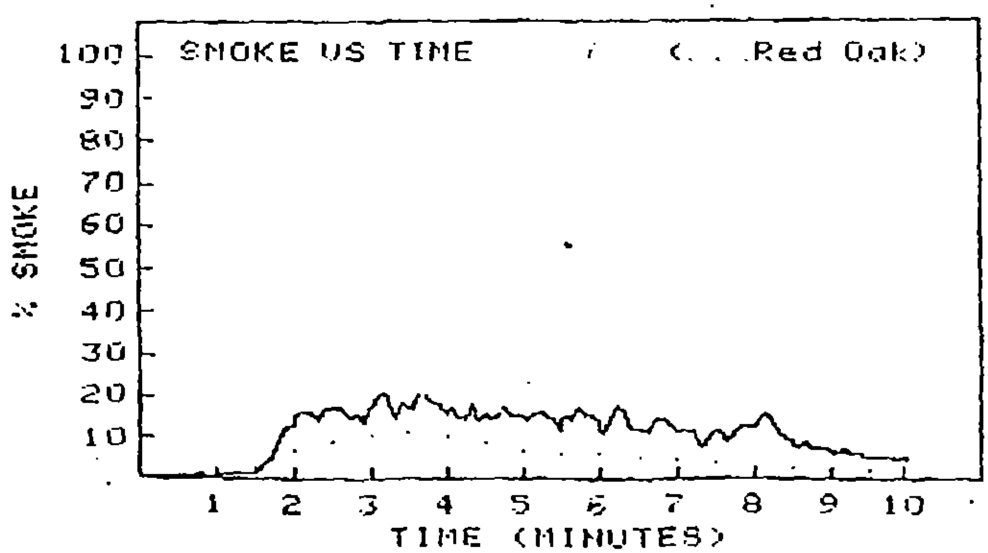
TABLE 3. OBSERVATIONS

Event	
Steady Ignition, min:s	0:41
Blisters, min:s	0:30
Hanging Down, min:s	1:24
Maximum Flame Front Advance, min:s	2:11
ft	8.0
(m)	(2.44)
Afterflame, min:s	0:50

Damage	
Consumed/Complete Char, ft	7.0
(m)	(2.14)
Heavy Char, ft	13.0
(m)	(3.97)
Peeling, ft	23.0
(m)	(7.02)
Discoloration, ft	25.0
(m)	(7.63)







A VINYL COMPOSITION FLOOR TILE: V-824-3

VB-02

TARKETT INC.

RECEIVED
JUN 17 1991
dePOLO/DUNBAR INC.

June 17, 1991

Mr. Stephen Brooks
DePolo/Dunbar Inc.
330 West 42nd St.
New York, NY 10036

Dear Mr. Brooks,

This letter is to certify that Tarkett Vinyl Cove Wall Base, 1/8" gauge- meets Federal Specification SS-W-40A, Type II. Tarkett Vinyl Cove Wall Base has been tested for flammability by the ASTM E-84 method. See attached report on this subject from Southwest Research Institute which tested the products marketed by Tarkett.

Thank you for the opportunity to provide this information for the Port Authority project.

Very truly yours,

Douglas H. Squires
Sr. Commercial Product Specialist

SOUTHWEST RESEARCH INSTITUTE
POST OFFICE DRAWER 28510, 8500 CULEBRA RD SAN ANTONIO, TEXAS 78284

Department of Structural Research Fire Research Section

INVESTIGATION OF SURFACE BURNING CHARACTERISTICS OF

A 4-IN. VINYL COVE BASE, 1/8-IN. WHITE

by
C. A. Hafer

Project No. 03-4381-114
Final Report

December 22, 1975

Prepared for

National Floor Products Company,
Incorporated
P.O. Box 354
Florence, Alabama 35630

Reviewed by:

William H. McLain

William H. McLain, Manager
Fire Research Section

I. INTRODUCTION

This report is a presentation of the results of a flame spread tunnel test on a 4-in. (10.16-cm) cove base, 1/8-in. (0.32-cm) white submitted for evaluation by National Floor Products Company, Incorporated of Florence, Alabama.

The report contains a description of the material, the preparation and conditioning of the specimen, the test procedure, and the test results. The results presented apply only to the specimen tested and not to the entire production of this or similar material. These reflect performance in the manner tested—not necessarily performance when used in combination with other materials. All test data are on file and are available for review by authorized persons.

The test was conducted in accordance with the provisions of ASTM Designation E84-70, "Standard Method of Test for Surface Burning Characteristics of Building Materials." This test method is technically equivalent to that specified in ANS No. 2.5, NFPA No. 255, UL No. 723 and UBC No. 42-1.

The purpose of the test is to evaluate performance of a material in relation to that of asbestos-cement board and red oak flooring under similar fire exposure. The results are in terms of flame spread, fuel contributed and smoke developed during a 10-minute exposure and are expressed as a ratio with asbestos-cement board zero and red oak flooring 100.

II. DESCRIPTION OF MATERIALS

On November 26, 1975, twenty-nine 4 X 48 X 1/8-in. (10.16-cm X 1.22-m X 0.32-cm) white vinyl sheets (toeless cove base) were received from the Sponsor. They had a unit weight of 130.81 oz/sq yd (4.44 kg/m^2).

III. PREPARATION AND CONDITIONING OF TEST SPECIMENS

The 21-in. X 25-ft (53.34-cm X 7.62-m) specimen was prepared using five 4 X 48-in. (10.16-cm X 1.22-m) plus five 4 X 27-in. (10.16 X 68.58-cm) strips of vinyl cove base bonded to 1/4-in. (0.64-cm) asbestos-cement board, 21 X 75-in. (53.34-cm X 1.91-m), with Kentile No. 9 Epoxy Adhesive. The adhesive was applied to the asbestos-cement board with a notched trowel. The materials were joined and the surface rolled with a 100-lb sectional roller to assure a firm bond.

The specimen was conditioned for 10 days in an atmosphere maintained between 70° and 75°F temperature and 35 to 40 percent relative humidity.

IV. TEST PROCEDURE

The test was conducted on December 15, 1975. Reference data were obtained and furnace operation checked by conducting a 10-minute test with asbestos-cement board on the day of the test and by periodic tests with red oak flooring. This provided the zero and 100 references for flame spread, fuel contributed, and smoke density. Ignition over the burners was noted 42 seconds after the start of the test in the most recent calibration with red oak flooring. Each specimen to be evaluated was tested in accordance with the standard procedure with the vinyl cove base exposed to the igniting flames inside the tunnel furnace.

E-84

V. TEST RESULTS

The test results, calculated on the basis of observed flame travel and the areas under the recorder curves of furnace temperature and smoke density, are presented in the following table. In recognition of possible variations in results due to limitations of the test method, the numerical results are adjusted to the nearest figure divisible by 5.

Recorded data for flame spread, fuel contributed, and smoke density of the specimen are shown in the figures at the end of this report as a solid line on each graph.

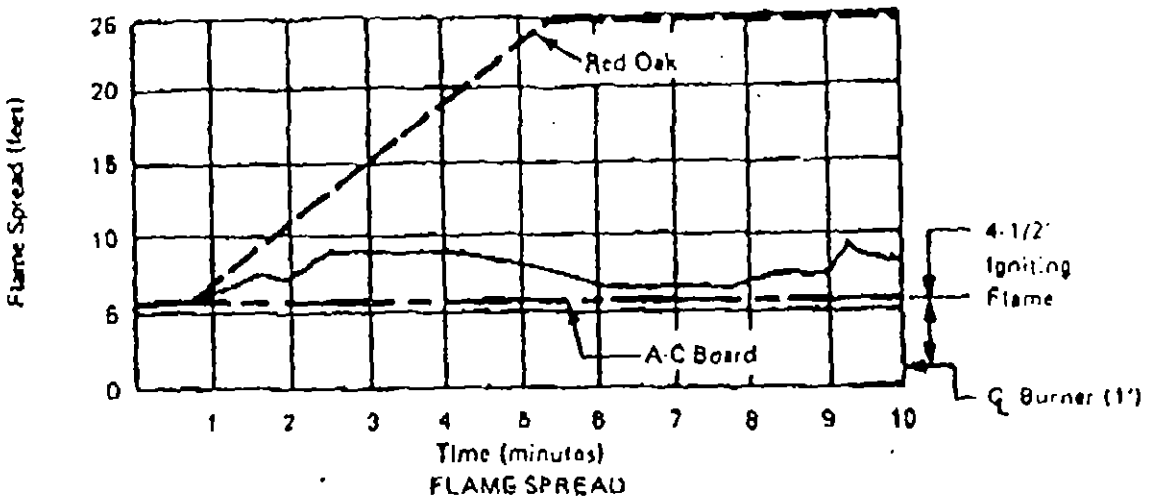
CLASSIFICATION TABLE

Test Specimen	Flame Spread Rate	Fuel Contributed Factor	Smoke Density Factor
Asbestos-Cement Board	0	0	0
Red Oak Flooring	100	100	100
4-in. (10.16-cm) Vinyl Cove Base, 1/8-in. (0.32-cm) White	20	10	65

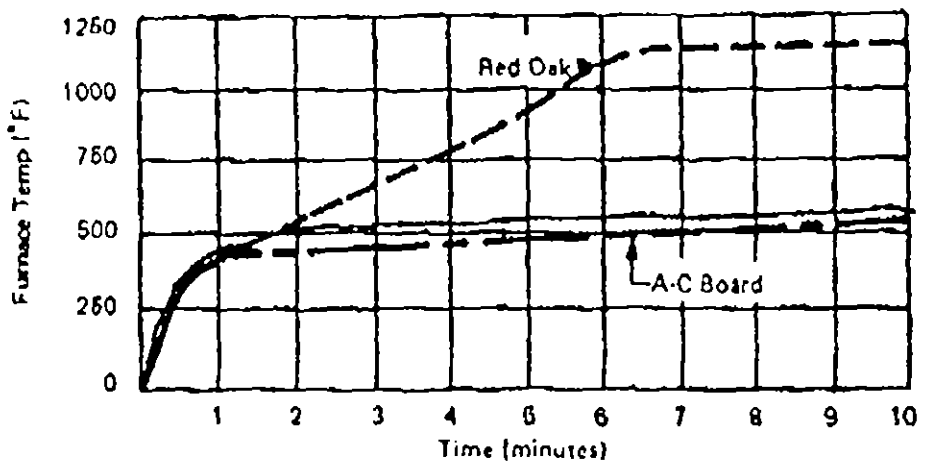
VI. OBSERVATIONS DURING AND AFTER TEST

The observations made during and after the test are summarized as follows: Ignition occurred at 29 seconds. Blisters began forming at 60 seconds. The flame front advanced to 9 ft (2.74 m) at 2-1/2 minutes and receded to 8 ft (2.44 m) at 4-1/2 minutes. A second advance to 9 ft (2.74 m) occurred at 9-1/4 minutes. Ignition of the fallen pieces on the furnace floor occurred at 9 minutes and this flaming ceased at 10 minutes. Afterflame persisted for 36 seconds.

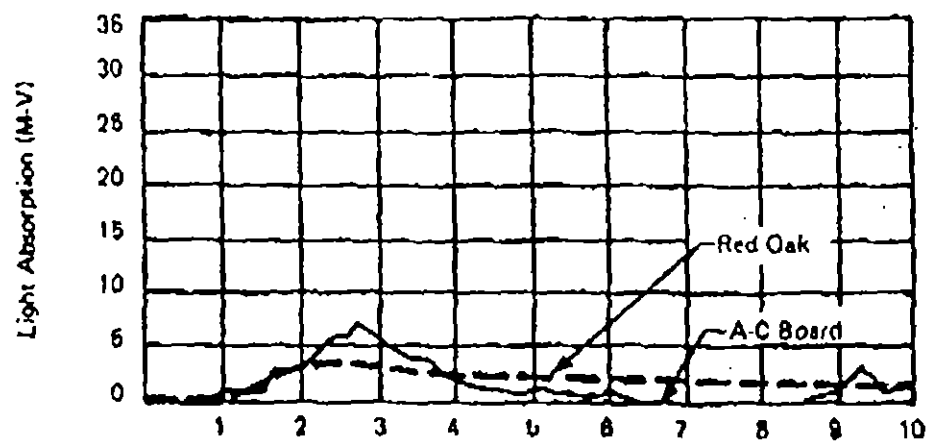
The vinyl cove base had charred through to 9-1/2 ft (2.90 m) with surface char and blisters to 16 ft (4.88 m).



FLAME SPREAD



FUEL CONTRIBUTION
(Furnace Temperature)



SMOKE DENSITY
(M-V Depression–Photocell)

SURFACE BURNING CHARACTERISTICS OF A 4-IN. (10.16-CM) VINYL COVE BASE, 1/8-IN. (0.32-CM) WHITE.

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Julian Kau, General Manager,
Planning, Design & Construction, WT&EDD
From: Ennala Ramabhushanam
Date: May 9, 1991
Subject: **WTC - ALTERATION APPLICATION W-4636 - CEDEL, S.A. - 1 WTC - 90TH FLOOR - GENERAL CONSTRUCTION**

Reference: Review Request dated 4/29/91

Copy To: G. Gaeta R. Wegel Job Folder
L. Menno Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation that approval to proceed with construction be withheld, has been changed to recommending that approval to proceed with construction be given subject to the submission of the items listed below being revised in accordance with the three (3) requirements listed on the attached rider.

Drawings: Test Reports:

REMARKS: 1) Please note that although this alteration application is recommended to be approved, the submitted drawings are not coordinated with the architect's response indicating compliance with the code comments.

2) Attached is a list of approved drawings with latest revision dates.

3) This memorandum was transmitted to the Facility via OA on May 9, 1991.

For Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

KG/dm
att.

RIDER

ALTERATION APPLICATION W-4636

ARCHITECTURAL

1. The response to item 2 regarding BS&A number for finish ceiling is noted. Please provide a copy of the same approval per N.Y.C. Building Code Section C26-106.2. (Repeat comment)

2. For all interior finishes as shown on Dwg. A-5, please provide copies of approved results from independent testing laboratories in lieu of the manufacturer's certification, and substantiate that they are in compliance with all the requirements of Code Section C26-504.10 regarding flame spread rating, smoke developed rating, and toxicity. (Repeat comment)

STRUCTURAL

3. Responses to comment 6 (Lightweight Ceiling Supports) and comment 7 ("Ceiling Fixture" supports), are noted. Please show complete details pertaining to these items in the contract drawings.

050991

ATTACHMENT

LIST OF APPROVED DRAWINGS

Drawings Numbers	Revision Date
Dwg. A-1 thru A-11	03/12/91
A-12	12/06/90
E-1	04/16/91
E-2	03/06/91
E-3	03/12/91
SP-1	03/06/91
SP-2	03/06/91
P-1	03/06/91
P-2	03/06/91
M-1	03/06/91
M-2	03/06/91
M-3	03/06/91

050991

4/30

TENANT ALTERATION REVIEW REQUEST
World Trade and Economic Developement

No. Routing Loc.	Applicant's Name: CEDEL, S.A.	Facility: WORLD TRADE CENTER
QUALITY ASSURANCE 51W ✓ P.Cooper ___W/3 ✓	T.A.A. No: 4636	Dwg.No(s). ✓ See attached
IN HOUSE 36S ___ R.Becker ___W/1_ ✓ V.Levinson ___W/1✓ ___ Sen Pu Chiao _W/1_	Contract No: 591.970 Location: 1WTC/90th FL. Date: 4-29-91	
WT&EDD CONSTR. 36N ___ P.Cavanagh __W/1__	[✓] SPECIAL INSTRUCTIONS: re-submission.	
OPERATIONS 36N ___ T.Cancelliere W/1	Originating Unit: 829	Contact: John P. Vinciguerra Extn: 435 - 2960 36W
RISK MANAGEMENT Z57 4FL ___J.Foye (Pathside)W/1	Please return no later than: 5-13-91 Supervisor: Gerard Gaeta Extn. 435-2057 36W	
ASBESTOS 36N ___ F.Boyce ___W/1___	Submission: 1st [ ] 2nd [ ] 3rd [ ] 4th [✓] 5th [ ] 6th [ ] other [ ] Construction cost: $ 200,000	

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV.
DESIGN STANDARDS
APR 30 1991
W-4636
RECEIVED
ALTERATIONS APPLICATION
TENANT CONSTRUCTION REVIEW UNIT

Description of work:

[✓] General construction: [ ] Construction limited to:

[ ] Minor work including:

[✓] Architectural [✓] Electrical [ ] Plumbing [ ]
[✓] Structural [✓] HVAC [ ] Sprinkler [ ]
[ ] Other: _____

Attached are:

[ ] BS&A / MEA resolutions [✓] Laboratory test reports for carpeting
[ ] Catalog cuts [ ] Samples [ ] _____
[ ] Consultants' responses to Port Authority review comments

Remarks: Flammability and smoke rating

cc: G. Daly, G. Gaeta, E. Monteverde, T. Rush, J. Uryini, R. Wegel, G. Wenger, J.P. Vinciguerra, T. Lynch (Rentals Rep.)

Signature: Gerard Gaeta Date: 4/29/91
(For) Louis Menno, Manager
Contract and Tenant Services Division
World Trade and Economic Developement

jpv 4/6/91

April 15, 1991

04/26 Low Memo Action

GAD

RECEIVED

APR 24 1991

PORT AUTHORITY OF N.Y. & N.J.
WORLD TRADE ECONOMIC DEV.

Mr. Julian M. F. Kau
Port Authority of New York & New Jersey
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
One World Trade Center - 90th Floor
d/D Project #1150

Dear Mr. Kau:

I have received your letter to Mr. Philip Humbert dated April 10, 1991, in reference to attachment "B" review comments please note the following:

1. We have reviewed general comment #1 and will not deliver or install the file cabinets until we satisfy the requirements of structural comment #5.

GAD 2. Comment #2. The doors will be smoke proof and will comply with the NYC Building Code Section C26-604.4(c).

GAD 3. Comment #3. We will indicate the BS&A # on the drawing.

GAD 4. Comment #4. We will gather and re-submit copies of approved results from independent testing laboratories if available. Please be aware that we have already submitted the manufacturers certification as originally requested.
Comment #4b. We will re-submit the testing laboratory documents as requested.

GAD 5. Comment #5. As originally requested, we will provide you with the calculations required using the 33 psf per tier that you are now requesting. However our calculations are based on the structural drawings and information you provided as per P.A. Drawing WTC Floor Loads. We do not feel our structural engineer should verify the adequate load that your beams can support.

GAD 6. Comment #6. The ceiling will be built in accordance with the Port Authority of New York and New Jersey Drawing S-1 lightweight ceiling support system.

GAD 7. Comment #7. The detail will be shown on the drawings.

GAD Comments 8, 9 & 10 are responded to in the attached letter from Herbert Kundstadt and Associates. Please be advised that all drawings will be revised and re-submitted to comply with these comments.

Please call me if any of the above responses do not satisfy your requests.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

Frank Loffredo
Principal

FL:dd
attachment

RECEIVED
APR 26 1991
PORT AUTHORITY OF NY & N.J.
WIVED DEPARTMENT, 1WTC

cc: David Heiser, Mario Pesa, Gerry Gaeta, John Vincquera, Bob Goodman
Philip Humbert, Jean-Marc Lenhert, Steven Brooks

Herbert Kunstadt Associates PC
CONSULTING ENGINEERS

April 17, 1991

Mr. Steven Brooks
dePolo/Dunbar Inc.
330 West 42nd Street
New York, NY 10036

Re: Cedel S.A.
Port Authority Comments of April 10, 1991

Dear Steven:

We refer to the review comments dated April 10, 1991, prepared by the Port Authority. Our response is as follows:

Item #34: This tenant space does not have any supply ducts on the west exposure.

Item #35: The WTC Base Building Pneumatc Control piping is not being used in this tenant space.

Attachment "B" - Review Notes.

Structural

GAD Item #8: Drawing SP-1 shows location of pipe in suspended ceiling and the connection/hanger detail.

Electrical

GAD Item #9: The Electrical Specifications have been amended to comply.

HVAC

GAD Item #10: Additional information to clarify Ventilation Index for Conference Room 9007 is as follows:

Ventilation Code compliance with Section C26-1206.3 is achieved as follows:

(2) Induction Units Primary Air Supply = 60 CFM x 2 = 120 CFM
(1) Induction Unit Primary Air Supply = 75 CFM x 1 = 75 CFM
195 CFM

Actual supply air into the room based on an Induction Ratio of 1:4, i.e, Primary Air Induces four (4) times its volume of Room Air = 195 x 4 = 780CFM
Outside air for ventilation = 67% of 195 CFM = 131 CFM

cedel.ltr/ltrs-16

Herbert Kunstadt Associates PC
CONSULTING ENGINEERS

The Ventilation Index of 610 requires Supply Air = 297 CFM into this room. The actual supply of 131 CFM Outside Air represents 44% of the required total supply, whereas the code requires only 33.33%. Consequently, we exceed the code requirements for Outside Air Supply.

We hope that the above clarifies all the latest comments, however, should you have any questions, please call.

Sincerely yours,

HERBERT KUNSTADT ASSOCIATES PC

Leslie Kahn, PE
Vice President

March 18, 1991

Mr. Gerry Gaeta
Port Authority
Approvals & Construction
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
One World Trade Center
d/D Project #1150

Dear Mr. Gaeta:

As per your request, enclosed are the flammability testing letters for the Port Authority of NY/NJ fire codes certifying the Cedel furniture, material and fabric. Also enclosed is a copy of the flame-spread rating in accordance with the New York Building Laws Section 26-504.10.

If you have any questions or require additional information, please do not hesitate to call.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

Jim Mileto

Jim Mileto

JM:dd
encs.

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV.
DESIGN STANDARDS
office copy
APR 30 1991
W-4636 (4)
RECEIVED
ALTERATIONS APPLICATION
TENANT CONSTRUCTION REVIEW UNIT

DRAWING #A5
CP01
CARPET
ALL AREAS
EXCEPT 9004, 9003

ATLAS CARPET MILLS, INC.

Corporate Headquarters
2200 Saybrook Avenue, Los Angeles, California 90040

March 11, 1991

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 7

To Jim Mileto	From MARK NESTLER
Co. de Polo Dunbar	Co. ATLAS CARPET
Dept.	Phone #
Fax #	Fax #

Mr. Jim Mileto
de Polo Dunbar Inc.
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto,

Tracey has asked if Atlas' Positano quality meets the criteria for flammability of the Port Authority of NY & NJ.

The answer is yes, as evidenced by the attached test results. However, please note that the Port Authority criteria you gave Tracey refers to carpeting assemblies. This would include all materials used in the installation, i.e. adhesives, tack strip, underlayment, etc., plus the carpet. In order to get that information, you would need to test all the materials together.

Again, Positano, on its own, does pass the criteria given to Tracey. If you have any questions, please give me a call.

Thank you.

Sincerely yours,

ATLAS CARPET MILLS, INC.

Mark A. Nestler
Vice President

MAN:jz

cc: Tracey Coward

United States Testing Company, Inc.
California Division
5555 TELEGRAPH ROAD, • LOS ANGELES, CALIFORNIA 90040 • (213) 723-7161
Laboratories in Principal Cities

REPORT OF TEST

ATLAS CARPET MILLS
2200 Saybrook Avenue
City of Commerce, CA 90040

FLAMMABILITY AND SMOKE EVALUATION
OF FLOOR COVERING MATERIALS

CARPET QUALITY:
38 OZ. CUT AND UNCUT TEXTURE

December 21, 1990

Dennis Trinidad
Dennis Trinidad
Test Technician

YUK LUN YEUNG

Yuk Lun Yeung
Test Technician

TEST REPORT NO. 185211
SIGNED FOR THE COMPANY

BY: Michael S. Elliott
Michael S. Elliott
Director/Fire Tech. Dept.

ms

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. NOTHING CONTAINED IN THIS REPORT SHALL MEAN THAT UNITED STATES TESTING COMPANY, INC. CONDUCTS ANY QUALITY CONTROL PROGRAM FOR THE CLIENT TO WHOM THIS TEST REPORT IS ISSUED. UNLESS SPECIFICALLY SPECIFIED, OUR REPORTS AND LETTERS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED, AND THEY AND THE NAME OF THE UNITED STATES TESTING COMPANY, INC. OR ITS SEALS OR INSIGNIA, ARE NOT TO BE USED UNDER ANY CIRCUMSTANCES IN ADVERTISING TO THE GENERAL PUBLIC AND MAY NOT BE USED IN ANY OTHER MANNER WITHOUT OUR PRIOR WRITTEN APPROVAL. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.

A Member of the SGS Group (Societe Generale de Surveillance)

SGS

REFERENCES

1. Client's Purchase Order Number 32242 dated October 4, 1990.

2. Client's confirmation copy dated November 30, 1990.

TEST REQUEST AND METHOD

The submitted carpet sample was tested for (A) Flammability in accordance with the procedures outlined in ASTM Designation E-648, "Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source". This test method is comparable to NFPA No. 253, and (B) Smoke Density in accordance with the procedures outlined in ASTM Designation E-662, "Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials". This test method is comparable to NFPA No. 258.

SAMPLE IDENTIFICATION

The sample tested was submitted and identified by the Client as:

Carpet Quality:	38 oz. Cut and Uncut Texture Floor Covering
Construction:	Cut and Uncut Texture
Pile Yarn:	100% Antron Nylon
Tufted Yarn Weight:	38 oz./sq.yd.
Backing: Primary:	Woven Polypropylene
Secondary:	Action Bac
Overall Weight:	68 oz./sq.yd.
Overall Thickness:	0.35"

Appr'd by ME

SGS

A. FLAMMABILITY PER ASTM E-648

PREPARATION AND CONDITIONING

The carpet sample material was cut into three sections 10" wide by 42" long and adhered to 1/4" inorganic reinforced cement board with a latex based adhesive.

Prior to clamping the floor covering system in the mounting frame, the specimens were conditioned at 21 ± 3°C and a relative humidity of 50 ± 5% and allowed to reach moisture equilibrium.

Note: Per the Client's request, the test specimens were adhered directly to the inorganic reinforced cement board substrates. Carpet sample was identified by the Client as material intended for direct glue down application.

TEST PROCEDURE

The test chamber was pre-heated for one hour and the radiant panel black body temperature verified to be within 5°C of the temperature established during calibration. The pilot burner was ignited and the specimen inserted into the chamber. After a two-minute pre-heat, the pilot burner flame was placed in contact with the specimen for ten minutes, then removed. The test was continued until all flaming ceased. The distance burned was measured and converted to Critical Radiant Heat Flux at flame out.

Appr'd by

B. ASTM E-662 SPECIFIC OPTICAL DENSITY OF SMOKE

PREPARATION AND CONDITIONING

The carpet sample was cut into six specimens 3" by 3" and prepared for testing as outlined in the aforementioned standard. Prior to insertion in the specimen holder, the specimens were dried for 24 hours at 140 ± 5°F and then conditioned to equilibrium at a temperature of 73 ± 5°F and a relative humidity of 50 ± 5%.

TEST PROCEDURE

The test chamber was preheated to 95 ± 4°F and all steady state conditions checked. Following placement of the specimen in the chamber and initiation of the test, light transmittance and time were plotted continuously with a multi range recorder. The test, in the flaming and non-flaming mode, was continued for a minimum of 3 minutes after the recording of minimum light transmittance. The chamber was then evacuated of smoke particulate until maximum light transmittance was reached. That value was recorded as clear beam and is used in calculating the Maximum Corrected Specific Optical Density of Smoke.

Appr'd by MEe

SGS

TEST RESULTS

A. Flammability per ASTM E-648

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Specimen Number	Burn Distance Centimeters	Critical Radiant Heat Flux, Watts/cm^2
1	39.0	0.54
2	34.0	0.63
3	36.0	0.59
Average	36.0	0.59

OBSERVATIONS

Discoloration and charring was observed in advance of the flame front on all specimens. Moderate smoke evolution was noted.

REQUIREMENTS

The 1988 Edition of the NFPA "Life Safety Code" provides the following classification for regulating interior flooring materials in specified occupancies:

CLASS I - Includes materials which have a minimum Critical Radiant Flux of 0.45 watts/cm^2.

CLASS II - Includes materials which have a minimum Critical Radiant Flux of 0.22 watts/cm^2.

Examples of the requirements for application of interior flooring material in exits and corridors for specified occupancies are listed below.

Health Care Centers
Class I in new facilities and for newly installed flooring materials in existing facilities.

Child Care Centers
Class I or II in both new and existing facilities.

Hotels and Dormitories
Class I or II in both new and existing facilities.

Apartments
Class I or II in both new and existing facilities.

Appr'd by MEe

SGS

TEST RESULTS

B. Smoke Density per ASTM E-662

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	95	122	109
2	98	132	120
3	82	132	121
Average	92	129	117

Non-Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	22	241	236
2	20	237	234
3	18	249	247
Average	20	242	239

Legend:

Specific Optical Density: Ds
Maximum Specific Optical Density: Dm
Maximum Specific Optical Density Corrected: Dm Corr.

OBSERVATIONS

In the flaming mode, test specimens exhibited surface discoloration, charring, bubbling and melting of the pile yarn upon contact with the flame tiplets. Flaming drips were noted throughout the test period.
In the non-flaming mode, test specimens exhibited surface discoloration, charring, swelling, melting and bubbling upon exposure to the heat source.
In the flaming mode, maximum smoke evolution occurred at an average time of 10 minutes and in the non-flaming mode, 20 minutes.

Appr'd by

JM Lynne Wallcovering
ADAM JAMES Textiles

[redacted]

J.M. Lynne Co., Inc.
979 Third Avenue
Room 1405
New York, NY 10022
212 751 3258

Janaury 16, 1991

[redacted]

DEPOLO DUNBAR INC.
330 West 42nd Street
New York, New York 10036

Att: Judy Gordon

RE: **CEDEL**

Dear Ms. Gordon,

As per your request we certify that the wallcovering pattern listed below has been tested for fire hazard classification as per ASTM-E-84, with the following results.

BOURGET 28173-89

VESCOM ~~KASTRUP 28144-89~~

[redacted]
Smoke Developed.... 65

If you have further questions or if I can be of additional assistance do not hesitate to call.

Very truly yours,

Richard Carlino
Sales Representative

RC:mah

(a) The space containing the combustible partitions does not exceed 5,000 sq. ft. in area within a noncombustible enclosure having a fire-resistance rating of at least one hour.

(b) The space is in a single tenancy.

(c) Glass or slow burning plastic is used for glazing.

27-347 (26-504.9) FOLDING PARTITIONS. Folding partitions shall not be used as partitions that are required by this code to have a fire-resistance rating.

(a) **Construction group I** - In buildings of construction group I, folding partitions may be used if they are constructed of noncombustible materials, or of fire retardant treated wood, or are constructed of noncombustible frame covered with fabric that has a class A interior finish rating. Where partitions of combustible materials are permitted by section 27-346 of this article, folding partitions may also be constructed of combustible materials. Where doors constructed of materials having a class C interior finish rating are permitted by section 27-348 of this article, folding doors may be constructed of combustible materials.

(b) **Construction group II** - In buildings of construction group II, folding partitions may be constructed of combustible materials, surfaced with interior finish materials meeting the requirements of section 27-348 of this article.

27-348 (26-504.10) INTERIOR FINISH.

(a) **Definition** - For the purposes of this section, interior finish shall mean those materials that form the exposed interior surfaces of a building and that are part of or affixed to walls, fixed or folding partitions, ceilings and other construction elements.

(b) **Classification** - Interior finish materials shall be classified in accordance with the surface flame-spread rating obtained as prescribed in the provisions of reference standard RS 5-5. Where an interior finish material is comprised of 2 or more materials laminated, glued, nailed, or otherwise secured together, the test rating for flame spread shall be based upon the composite of the materials in the form in which it will be used in construction. Interior finish materials shall be grouped in the following classes, in accordance with their surface flame-spread characteristics:

Interior Finish Class	Flame-Spread Rating
A	0 to 25
B	26 to 75
C	76 to 225
D	Over 225

(c) **Requirements** - Interior finishes and exposed structural or construction materials shall have a flame-spread rating not greater than that designated for the class prescribed for the various occupancy groups in which they are used as listed in Table 5- 4. Exceptions to these requirements are:

(1) Finish flooring and floor coverings, which are subject to the requirements of section 27-351.

(2) Wall coverings and coatings that are less than 0.036 in total thickness, when applied directly to a noncombustible, or fire-retardant treated wood, substrate.

(3) Exposed structural members and planking in buildings of class II-A construction, which may be left exposed in any room or space, except in exits.

(4) 20% of the aggregate wall and ceiling area of any room, space, or corridor required to have a class A or B rating may be finished with materials having a class C rating. This allowance shall include the area of doors, folding partitions, windows, glazing, skylights, luminous ceilings, trim, bases, chair rails, panels, moldings, etc. This exception shall not operate as a waiver of other requirements of this code relating to opening protectives.

(5) When a sprinkler system is provided in any room or space, [illegible] is installed in compliance with the construction provisions of subchapter 17 of this chapter, interior finish materials may be one class higher in flame-spread rating than required by Table 5-4.

Armstrong

March 4, 1991

Mr. Jim Mileto
DePolo Dunbar Architects
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto:

Subject: Cedel Project
World Trade Center
New York, New York

Thank you for speaking with me on Friday, March 1 regarding the subject project. As per our discussion, Armstrong Cirrus Travertone #589 with Armstrong Suprafine grid meets all of the requirements of the fire codes of the World Trade Center and the Port Authority of New York and New Jersey.

In addition, may I further state that this product is a Class A product as per ASTM E 1264 and Federal Specification SS-S-118B. The product also contains a Flame Spread of 25 or under and is UL labeled. This product can, with great assurance, be used at the World Trade Center; as we have previously used this and other Travertone products at the World Trade Center since it's inception approximately 20 years ago.

If I can be of further assistance, please feel free to call upon me and, once again, thank you for your interest in Armstrong products.

Very truly yours,

Robert A. Baram

R. A. Baram
Territory Manager
Architectural Building Products Division

JAK

VICRTEX
INCORPORATED

DESIGNERS, MANUFACTURERS and DISTRIBUTORS of QUALITY WALLCOVERINGS, FABRICS and ACOUSTICAL SYS

Date March 4, 1991

In accordance with your request, we do hereby certify that our pattern LW 1110 from the Imported Fabrics Vol 5 Collection is Class "A" material rated for Fire Hazard Classification with ASTM-E-84 tunnel test method for flammability, as follows:

[redacted]

Fuel Contributed -

Smoke Developed 0

We trust the above is the information required and if we can be of any further assistance, please do not hesitate to call.

Very truly yours,

FORBO-VICRTEX INC.

James J. Maher
Sr. Vice President

JJM/do

LEVOLOR

FLAMMABILITY TEST CERTIFICATIONS

PRODUCT DESCRIPTION	NFPA 701	UL214	BFD IX-1	N.Y.C.	CA TITLE 19
Vertical Fabric, Baja Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Flanders Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Precious Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Reprise Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Inspiration Pattern	*	*	Pass	Pass	*
Vertical PVC Vane, PVC Groover	Pass	Pass	Pass	Pass	Pass
Tech Shade, Sheerweave	*	*	Pass	*	*
Tech Shade, Basket & Twill Weave	Pass	Pass	Pass	Pass	Pass
Polyester coated Aluminum, Slat or Vane**	Pass	Pass	Pass	Pass	Pass
Acrylic coated Aluminum, Slat or Vane**	Pass	Pass	Pass	Pass	Pass

* Material under testing as of 8/20/90

** To our knowledge no standard or established test criteria have been developed to evaluate flammability of lift cords, ladders, or plastic appearance parts as they are used in horizontal or vertical blinds. These components constitute less than 5 wt.% and are not considered to contribute to the overall flammability of the product.

D E S I G N T E X

March 7, 1991

DesignTex Fabrics Inc.

56-08 37th Avenue

P.O. Box 7708

Woodside, NY 11377

(718) 335-9000

Fax (718) 335-1553

[redacted]

Mr. Jim Miletto
Depolo Dunbar
330 West 42nd St.
NYC, NY 10036

Project: "Cedel" World Trade Center

Dear Mr. Miletto,

Thank you for your interest in style #1708-302 Radio City. I am happy to advise you that the above fabric can be flame proofed to pass the Port Authority NY, NJ fire test.

If you require any additional information, please do not hesitate to contact me.

Yours Very Truly,

Barry Skolnik
DesignTex

THE LACKAWANNA LEATHER CO.
P. O. Box 939
Conover, N. C. 28613-0939
704/322-2015

Artisan

Ref.: P.O.# 2717 Mandarin

Gentlemen:

This is to certify that Lackawanna leathers meet the following flammability codes:

BIFMA Flammability Standard F-1-1978 (Rev. A80)

California Technical Bulletin 117/E

U.F.A.C. Classification (I & II)

Boston Code

Port Authority of N.Y./N.J. (Method 5903)

FAA Specification #FAR 23.853

If you have any questions, please feel free to call.

Very truly yours,
LACKAWANNA LEATHER COMPANY

Wilhelm M. Bley
Manager

WB/df

GS Associates Inc.
IDCNY
30-20 Thomson Avenue
Long Island City, NY 11101
(718) 937-1880

March 11, 1991

Mr. Jim Mileto
dePolo/Dunbar Incorporated
330 West 42nd Street
New York, New York 10036

Re: Cedel, S.A.
One World Trade Center

Dear Mr. Mileto:

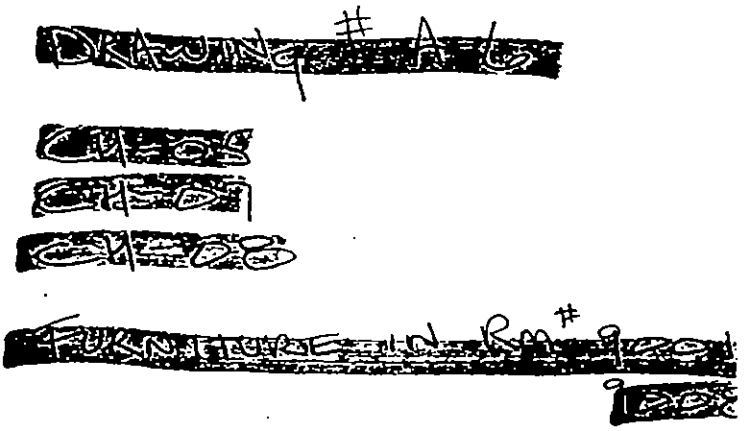
As per our telephone conversation, the Brayton Furniture line of Clou Sofa and Trasio Chair Collection can be upgraded with Isoguard Foam to meet all Port Authority fire codes.

If I can be of further assistance, please call.

Very truly yours,

Joe Solinsky

/js



Maharam

March 4, 1991

Mr Jim Melito
DePolo Dunbar
330 West 42 Street
New York NY 10036

Dear Jim:

We are delighted you have selected our 54" 75% Modacrylic, 25% Nylon, Safety Pinwheel color #145 Poppy.

Please note, these fabrics meet the requirements of Port Authority of New York - New Jersey.

If you require actual test reports, please let me know.

Best regards,

Linda.

Linda Namias

LN/lm

979 Third Avenue
Suite 1223
New York, NY 10022
212 753-5440

Safety Series/3 meets requirements of Boston Fire Code — Port Authority of New York, New Jersey — NFPA 701 Vertical Test — California Register — Aircraft Compartment Interiors.

To keep your Safety Series/2 library complete, we suggest that you immediately request replacements for any color cuttings removed. Please call our toll-free WATS line:

1-800-645-3943
Extension 233 — Sample Department

Ask for replacements by pattern, color number, and color name (Example: Safety Melange, #142 Midnight) or attach the identification card removed from the swatch you have used to your letterhead and mail to:

Maharam
P.O. Box 300/Rasons Court
Hauppauge, NY 11788

Replacement cuttings will be sent by return mail.

Important — When your replacement cuttings arrive, please insert them immediately next to the appropriate color reference square. In that way your library will always be complete and accurate.

TECHNICAL INFORMATION

FLAME RETARDANCE DATA:	Tunnel Test Surface Ratings — **Class A Rating** ASTM-E84 — ANS #2.5 NFPA 255 — UL #723 — UBC #42.1 — UFAC — Cal. Reg. #CS-191-53, Bulletin #117 Safety Series/2 meets the requirements of the San Francisco Bureau of Building Inspection, General Approval No. 258 M42.33.	
CLASSIFICATION TABLE:	Flame Spread Rate Fuel Contributed Factor Smoke Developed	10 15 25
UPHOLSTERY WEAR TEST DATA:	Resistance to Abrasion — Wyzenbeek Method NAFM Requirements Safety Series/2	 15,000 Double Rubs 50,000 Double Rubs
FAA REGULATIONS:	Please inquire about necessary treatments available to comply with these requirements.	
CLEANING CODE:	Code S — Only mild, pure, water-free dry cleaning solvents may be used for cleaning this fabric. Cleaning by a professional furniture service is recommended. As with all upholstery fabrics, it is extremely important to PRE-TEST your cleaning method on a hidden area of the fabric to determine if the color bleeds, or if the fabric shrinks. When in doubt, seek the help of a professional furniture cleaner.	
LIGHT FASTNESS DATA:	A.A.T.C.C. Method NAFM Requirements Safety Series/2	16A 40 Hrs. 40+ Hrs.

Price List

Width	Pattern	Bolt Yardage (60 yards or more)	Cut Yardage
54"	**Safety Melange**	$_____ per yard	$_____ per yard
54"	**Safety Mosaic**	$_____ per yard	$_____ per yard
54"	**Safety Pinwheel**	$_____ per yard	$_____ per yard
54"	**Safety Texture**	$_____ per yard	$_____ per yard
54"	**Safety Twill Dot**	$_____ per yard	$_____ per yard

All Prices F.O.B. Hauppauge, New York

The samples in this book represent pattern/color standards. Since no two lots can be color matched identically, there may be a slight

Atelier International, Ltd.
235 Express Street
Plainview, N.Y. 11803
Telephone 516/935-6700
Telex 4758142
Telefax 516/935-6711

ai

March 8, 1991

Attention: Jim Mileto
DePolo Dunbar

New York and New Jersey Port Authority

Re: Ai Serenissimo Table.

No components of the Serenissimo table are flammable and should be acceptable to New York and New Jersey Port Authority. We would suggest though that a description of the table be submitted to the New York and New Jersey Port Authority and acceptance be verified in writing.

Re: Tentazione

Due to manufacturing difficulties compliance is not possible.

In the past we have successfully submitted the Le Corbusier pieces covered on leather. Since a precedent exists, this product is virtually assured of immediate compliance.

Sincerely,

Robert Ferraro
Research & Development Manager

cc: Z. Reyes

Fax Transmittal

Atelier International, Ltd.
International Design Center
30-20 Thomson Ave.
Long Island City, NY 11101
Telephone: 718/392-0300
Telefax: 718/392-1593

ai

To: DEPOO DUNBAR	Date: 3/18/91
Attn: JIM MILETO	Fax No.:
From: ZULEYKA REYES	No. of Pages:
Re: SERENISSIMO TABLE	Please advise if any pages are missing or illegible.

DEAR JIM,
FOLLOWING IS INFO ON THE TABLE.
I OUTLINED THE PARTS EXPLAINING PROCESS.

HOPE IT'LL HELP.

THANKS

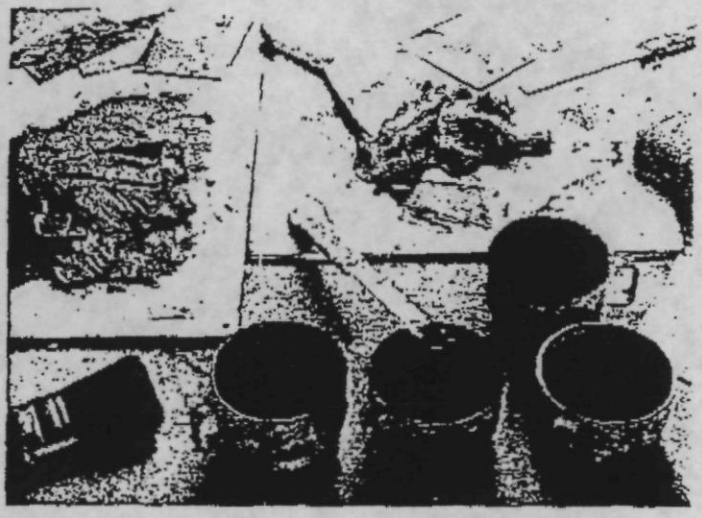
ZULEYKA

ai

Atelier International, Ltd.
235 Express Street
Plainview, NY 11803
Telephone: 516 935-6700
Telex: 4758142

ACERBIS INTERNATIONAL

Encaustic Finishes: Also known as Venetian stucco," the encaustic technique has been used by Italian artisans for hundreds of years. The method - unsurpassed to this day - lends in a unique chromatic range of elemental colors which can be applied to certain furniture designs. Derived from the colors and detail inherent in the landscape and figure painting of eighteenth-century fine artist Francesco Guardi (Venice, 1712 to 1793), encaustic is the symbolic expression of authentic Venetian art during its period of greatest splendor. Encaustic employs an exceptionally fine sand plaster mix, processed through a number of controlled stages. The coloring stage is executed by mixing natural soils with fluid limewash and plaster. The limewash burns the color, altering it as it dries. (Hence, the Latin term encaustic is derived from the Greek word meaning "to burn.") In a later stage, known as "floating," modern-day artisans smooth the sand plaster by hand over the furniture, with a spatula, blending the colors unevenly into the mix. The result is the distinctive surface and look of encaustic - and of historic Italian craftsmanship.



reparation of the colors

llow

Blue

Green

Pink

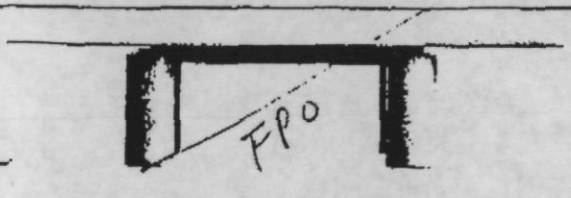
d

Grey

White

Pale Blue

Serenissimo



Model: Serenissimo
HS 200 Square table, 49.6" x 49.6"
HS 210 Square table, 57.1" x 57.1"
HS 220 Square table, 62.2" x 62.2"
■ HS 300 Rectangular table, 98.2" x 38.6"
■ HS 310 Rectangular table, 98.2" x 49.6"
HS 320 Rectangular table, 118.1" x 43.3"
HS 330 Rectangular table, 118.1" x 46"
HS 400 Round table, 57.1" diameter
HS 410 Round table, 62.2" diameter
Designers: Lella and Massimo Vignelli and David Law
Date of Design: 1985
Model Description: A collection of tables with glass tops supported by steel columns finished with Venetian stucco. Recipient of the 1987 Gold IBD and ROSCOE Awards.
Construction: Plate-glass tops are freely supported by 3 or 4 cylindrical steel legs, interconnected by a steel framework. Cylindrical steel legs are covered with hand-applied colored stucco in traditional encaustic technique which produces a variegated finish. Opalescent grey and bronze glass tops are 0.47" thick; opalescent white and translucent glass tops are 0.59"
Finishes: *Glass Tops:* clear, grey or bronze or opalescent white, opalescent grey or opalescent bronze. *Note:* clear grey or bronze glass; and opalescent grey or bronze glass are not available on round tables (HS400, HS 410)
Frame: natural finish, non-rust metal; *Stucco legs:* white, pale blue, blue, green, pink, ochre, oxide, grey, or coral.
Specify: *Model:* number; *Top:* finish and color; *Legs:* color.
Order Code:
CGL Clear Glass
OGL Opalescent Glass
Companion Pieces: Serenissimo Executive Conference Tables, Serenissimo Executive Desks, Serenissimo 36 Low Tables, Soffio di Vento Storage System.
Shipping: Best way. Shipped in 5 or 6 crates. See shipping information pg. 6, and cartoning/crating charges pg. 8. All tables require field assembly at additional cost.
Note:
1: Check elevator dimensions for delivery of table tops.
2: Available by special request with holes to accomodate wireway connections.
3: Special glass sizes available for all bases except three cylinder base (for round top). A special size round table can be designed by specifying the base to an HS 200, HS 210 or HS 220. Contact your Sales Representative for details.
■ Available from Quick-ship program for model HS300 and HS310 in blue, green and grey legs.

TESTING - DATA SHEET

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-9044

COMPANY SUBMITTING SAMPLE:

Name: Spinneybeck Inc

Address: 405 N French Rd
Amherst, NY 14120

Telephone #: 800-482-7777/716-691-2840
Margot D'Ambrosio

CLIENT'S IDENTIFICATION: Saddle P.O. # 858 CH-07 CH-08 DRAWING A6

DATE SAMPLES RECEIVED: 7/14/89 TEST REPORT #: 87134-1

TEST PERFORMED: NFPA 260A - 1983 LEATHER FABRIC FOR CHAIRS IN RM # 9008

Cigarette Ignition Resistance of Fabric Intended For Use in Upholstered Furniture

GOVMARK TEST RESULTS

Specimen #	Ignition	Char Length Inches (Vertical Panel)
1	None	0.0 *
2	None	0.0 *
3	None	0.0 *

CRITERIA:

Class I: For each specimen the Char Length shall be less than 1.75" (indicates propensity to resist cigarette ignition in conjunction with standard foam filling material)

Class II: If any specimen ignites, or has a Char Length of 1.75" or greater (indicates inability to resist cigarette ignition in conjunction with standard foam filling material)

CONCLUSION: The above results indicate a Class I rating.

I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified by NFPA 260A - 1983.

DATE TESTING COMPLETED 7/24/89

jd

SIGNATURE OF TEST SUPERVISOR
THE GOVMARK ORGANIZATION, INC.

* Cigarette self-extinguished after 2 lightings.

UPHOLSTERY FABR. TESTING - CA BULLETIN 117 SECTION E #2

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-8044

COMPANY SUBMITTING SAMPLES

Name: Spinneybeck Inc

Address: 405 N French Rd

Amherst, NY 14120

Telephone #: 800-482-7777/716-691-2840

Margot D'Ambrosio

CLIENT'S IDENTIFICATION: Saddle

PO #858

DATE SAMPLES RECEIVED: 7/14/89

TEST REPORT #: 87134

TEST PERFORMED: California Technical Bulletin 117, Section E

GOVMARK TEST RESULTS

FACE Specimen #	Burning Time (Seconds)	BACK Specimen #	Burning Time (Seconds)
1	NRBT-DNI	6	NRBT-DNI
2	NRBT-DNI	7	NRBT-DNI
3	NRBT-DNI	8	NRBT-DNI
4	NRBT-DNI	9	NRBT-DNI
5	NRBT-DNI	10	NRBT-DNI
AVERAGE of specimens which burned		AVERAGE of specimens which burned	

REQUIREMENTS: Plain Surface Materials - 3.5 Seconds Minimum Average Burning Time
Raised Surface Materials - 7.0 Seconds Minimum Average Burning Time
- OR -
No Recordable Burning Time (NRBT)

EXPLANATION OF ABBREVIATIONS USED:

- NRBT-DNI - Did Not Ignite when exposed to test ignition source.
- NRBT-IBE - Ignited But Extinguished before burning through stopcord.
- NRBT-SF - Surface Flash Only -- Stopcord not burned and no burning, charring, or fusing of the base fabric.
- NRBT-TSF - Timed Surface Flash -- Stopcord burned but no burning, charring or fusing of the base fabric.

CONCLUSION: Complies with the stated requirements.

I certify that the above results were obtained after testing specimens [illegible] the procedures and equipment specified by California Technical [illegible] Upholstery Fabrics, dated January 1980.

DATE TESTING COMPLETED 7/18/89

jd

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Julian Kau, General Manager,
Planning, Design & Construction, WT&ED
From: Ennala Ramabhushanam
Date: April 5, 1991
Subject: **WTC - ALTERATION APPLICATION W-4636 - CEDEL, S.A. - 1 WTC - 90TH FLOOR - GENERAL CONSTRUCTION**

Reference: Review Request dated 3/25/91

Copy To: G. Gaeta R. Wegel Job Folder
L. Menno Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

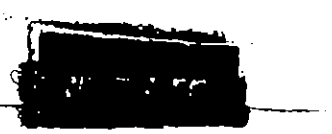
The previous recommendation to withhold approval to proceed with construction remains unchanged pending submission of the items indicated below being revised in accordance with the nine (9) requirements listed on the attached rider.

Drawings: Test Reports:

REMARKS: 1) This memorandum was transmitted to the Facility via OA on April 5, 1991.

Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

KG/dm
att.



RIDER

ALTERATION APPLICATION W-4636

ARCHITECTURAL

1. The response to item 1(a) is noted. The pair of 1 1/2-hour F.P.S.C. doors as indicated on Dwg. A-2, shall be smoke proof and shall comply with N.Y.C. Building Code Section C26-604.4(c). (Modified repeat comment)

2. The response to item 1(b) is noted. Please clarify where the BS&A resolutions of approval for the ceiling is shown on "d/D" Dwg. A-3, (Reflected Ceiling Plan). Please submit a copy of the same approval per code Section C26-106.2. (Repeat comment)

3. The response for item 2 regarding interior finishes is noted. Please provide the following:

   a) For all interior finishes coordinate the manufacturer's model numbers as shown on Dwg. A-5 with the provided documents. Please provide copies of approved results from independent testing laboratories in lieu of manufacturer's certification and justify that they are in compliance with all the requirements of Code Section C26-504.10, regarding flame spread rating, smoke developed rating, and toxicity. (Repeat comment)

   b) Please coordinate carpet Model Number PT36 as indicated on Dwg. A-5 and the documents provided by the testing laboratory and establish compliance with Code Section C26-504.13(2). (Repeat comment)

STRUCTURAL

*4. Dwg. A-6, File loads. The weight of the file cabinets and paper shall be estimated at 33 psf per tier (PANYNJ requirement). Please recalculate the added file loads and substantiate the adequacy of the existing structure. Note that this area was considered a "two-way corner" in the original design. (N.Y.C. Building Code C26-110.4)

5. Dwg. A-8, Detail D. The ceiling support system shall agree with PANYNJ Dwg. S-1, "Lightweight Ceiling Support System, 1 WTC and 2 WTC." (Repeat comment)

6. Dwg. A-9, Section 6. For metal studs supporting the suspended "ceiling fixture," indicate connection details to the existing construction.

7. Dwg. SP-1, "Detail location of pipe in suspended ceiling." Submit connection detail of sprinkler pipe to the existing floor truss. (C26-110.2) (Repeat comment)

ELECTRICAL

8. Dwg. E-1, Electrical Specifications, Section on Wires, Paragraph 1. To be consistent with the last sentence prohibiting the use of PVC, remove wire type THW (PVC insulated). Also, to avoid confusion, write correctly wire type XHHW (not XHHN).

HVAC

✓9. Dwg. M-1. Ventilation in the Conference Room 9007 is not in compliance with the N.Y.C. Building Code, Section C26-1206.3 since the design supply air and outside air are less than that required. The capacity of each existing induction unit is 60 CFM primary air of which 67% is outside air. Clarify how 780 CFM actual supply and exhaust air shown on Dwg. M-3, Ventilation Index, are calculated. (Modified repeat comment)

040591

TENANT ALTERATION REVIEW REQUEST
World Trade and Economic Developement

No.	Routing	Loc.
QUALITY ASSURANCE		**51W**
1	P.Cooper	W/3
IN HOUSE		**36S**
1	R.Becker	W/1
	V.Levinson	W/1
1	Sen Pu Chiao	W/1
WT&EDD CONSTR.		**36N**
	P.Cavanagh	W/1
OPERATIONS		**36N**
	T.Cancelliere	W/1
RISK MANAGEMENT		**Z57 4FL**
1	J.Foye (Pathside)	W/1
ASBESTOS		**36N**
	F.Boyce	W/1

Applicant's Name: CEDEL SA

T.A.A. No: 4636

Contract No: 591.970

Location: 107 90TH FL

Date: 3-25-91

Facility: **WORLD TRADE CENTER**

Dwg.No(s).
___ See attached
See ATTACHED LIST

[ ] SPECIAL INSTRUCTIONS: _____

Originating Unit: 829

Contact: J. VINCIGUERRA
Extn: 435 - _____ 36W

Please return no later than: 4/9/91

Supervisor: Gerard Gaeta Extn. 435-2057 36W

Submission:	1st	2nd	3rd	4th	5th	6th	other
	[ ]		[X]	[ ]	[ ]	[ ]	[ ]

Construction cost: $ 200,000

Description of work:

[ ] General construction: [ ] Construction limited to:

[ ] Minor work including:

[ ] Architectural [ ] Electrical [ ] Plumbing [ ]
[ ] Structural [ ] HVAC [ ] Sprinkler [ ]
[ ] Other: _____

Attached are:

[ ] BS&A / MEA resolutions [X] Laboratory test reports for carpeting
[X] Catalog cuts [ ] Samples [ ] _____
[ ] Consultants' responses to Port Authority review comments

Remarks: _____

cc: G. Daly, G. Gaeta, E. Monteverde, T. Rush, J. Uryini, R. Wegel, G. Wenger, J. VINCIGUERRA (Project Mgr.), T. LYNCH (Rentals Rep.)

Signature: Gerard Gaeta Date: 3/25/91

(For) **Louis Menno, Manager**
Contract and Tenant Services Division
World Trade and Economic Developement

jpv 1/6/91

PORT AUTHORITY OF N.Y. & N.J.
STANDARDS
MAR 26 1991
W-4636
RECEIVED
CONSTRUCTION REVIEW

42-P

March 13, 1991

Mr. Gerry Gaeta, R.A.
The Port Authority Of NY & NJ
One World Trade Center
New York, New York 10048

RECEIVED
MAR 18 1991
PORT AUTHORITY OF NY & N.J.
WT/ED DEPARTMENT, 1WTC

Re: Cedel, S.A.
d/D Project #1150

Dear Mr. Gaeta:

The following represents our response to your comments dated 2.19.91.

Architectural

1a. The glass doors will remain, however since there are no BS&A numbers available, we will install a pair of FPSC 1 1/2 hour rated doors on a fusible link as indicated on d/D drawing A-2 construction plan.

1b. The BS&A resolution for the ceiling is shown on d/D drawing A-3 reflected ceiling plan.

1c. The required documentations for the interior finishes are attached herewith.

Structural

3. The reduction of files should now comply with this comment.

4. As shown on drawings.

6. As shown on drawings.

For electrical plumbing, HVAC and fire protection please refer to the attached letter from Herbert Kunstadt & Associates.

Furthermore, the following architectural and engineering drawings revised dated 3.5.91 have been changed to comply with the above responses.

Drawing No.	Title
A-1	General Notes
A-2	Construction Plan
A-3	Reflected Ceiling Plan
A-4	Power/Telephone/Data Plan
A-5	Finish Plan
A-6	Furniture Plan
A-7	Elevations
A-8	Details/Sections

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE &
DESIGN STANDARDS
Official Copy
MAR 26 1991
W-4636 (3)
RECEIVED
TENANT ALTERATIONS & CONSTRUCTION UNIT

Drawing No.	Title
A-9	Partition Types/Details Hardware Schedule
A-10	Details/Sections
A-11	Telephone Plan
E-1	Electrical Specification
E-2	Floor Plan - Lighting
E-3	Floor Plan - Power
SP-1	Sprinkler Plans & Specifications
SP-2	NYS Dept. of Buildings Sprinkler Notes
P-1	Plumbing Plans, Riser & Specifications
P-2	NYS Dept. of Buildings Plumbing Notes
M-1	Mechanical Plan
M-2	Schedule Fire Damper & Details
M-3	Specifications, Index, Building Dept. Notes

Please call if you have any questions.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

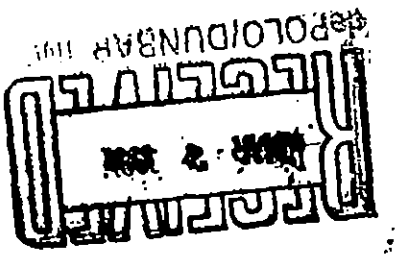
Frank Loffredo

FL:dd
encs.

Herbert Kunstadt Associates PC
CONSULTING ENGINEERS

March 6, 1991

Mr. Steven Brooks
de Polo/Dunbar, Inc.
330 West 42nd Street
New York, NY 10036



Re: Cedel S.A.
Port Authority Comments of February 19, 1991

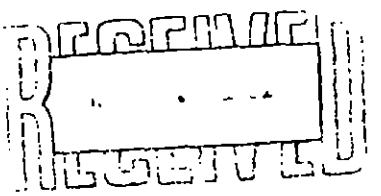
Dear Steven:

We refer to the review comments dated 2/19/91, prepared by the Port Authority. We have acted on all the comments after discussions with Gerald Gaeta, R.A. and John P. Vinciguerra.

For easy reference, we are responding to the Port Authority's comments using their numerical system.

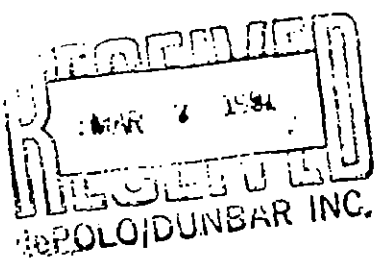
Architectural

1 and 2. No comment.



Structural

3, 4 and 5. No comment.



6. Location of sprinkler pipe in suspended ceiling and connection detail shown on drawing.

Electrical

7. Emergency battery packs for exit sign shown on drawing.

8. Panel schedule for circuits shown on drawing.

HVAC

9. The ventilation index has been recalculated. It should be noted that with an Induction System, the amount of air induced into the space is equivalent to at least four times the primary air. Recirc

10. Access doors at Type A fire dampers have been removed.

11. Seismic support specifications and detail for ceiling exhaust fans have been shown on drawings.

381 FIFTH AVENUE NEW YORK N Y 10016 FAX (212) 689-2159 TEL (212) 696-0720

cc SB

March 6, 1991

Mr. Steven Brooks
page 2

Plumbing

12. This item has been clarified on the drawing where connections to existing is shown.

13. Typo has been corrected.

Fire Protection

14. The temperature rating of the sprinkler heads have been modified to 165°F.

15 & 16. Specification sections have been modified.

17. The sprinkler design for this space is such that some of the existing piping has been modified. The existing sprinkler alarms have not been modified.

18. No packaged air handling units have been added or, in fact, exist in this space and, therefore, duct smoke detectors are not required.

19. The equipment items noted are a dishwasher, a refrigerator and a coffee machine. Area smoke detectors have not been provided nor, in our opinion, are they required.

We hope that the above clarifies all the comments. However, should you have any questions, please call.

Sincerely yours,

HERBERT KUNSTADT ASSOCIATES PC

Leslie Kahn, PE
Vice President

March 18, 1991

Mr. Gerry Gaeta
Port Authority
Approvals & Construction
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
One World Trade Center
d/D Project #1150

Dear Mr. Gaeta:

As per your request, enclosed are the flammability testing letters for the Port Authority of NY/NJ fire codes certifying the Cedel furniture, material and fabric. Also enclosed is a copy of the flame-spread rating in accordance with the New York Building Laws Section 26-504.10.

If you have any questions or require additional information, please do not hesitate to call.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

Jim Mileto

Jim Mileto

JM:dd
encs.

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPT., QUALITY ASSURANCE DIV.
DESIGN STANDARDS
office copy
MAR 26 1991 (3)
W-4636
RECEIVED
ALTERATIONS AGREEMENT UNIT
TENANT CONSTRUCTION REVIEW UNIT

DRAWING # A-5
CP-01
CARPET
ALL AREAS
EXCEPT 9004, 9003

ATLAS
CARPET MILLS, INC.

Corporate Headquarters
2200 Saybrook Avenue, Los Angeles, California 90040

March 11, 1991

Post-It™ brand fax transmittal memo 7671 | # of pages ▸ 7

To Jim Mileto	From MARK NESTLER
Co. de Polo Dunbar	Co. ATLAS CARPET
Dept.	Phone #
Fax #	Fax #

Mr. Jim Mileto
de Polo Dunbar Inc.
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto,

Tracey has asked if Atlas' Positano quality meets the criteria for flammability of the Port Authority of NY & NJ.

The answer is yes, as evidenced by the attached test results. However, please note that the Port Authority criteria you gave Tracey refers to carpeting assemblies. This would include all materials used in the installation, i.e. adhesives, tack strip, underlayment, etc., plus the carpet. In order to get that information, you would need to test all the materials together.

Again, Positano, on its own, does pass the criteria given to Tracey. If you have any questions, please give me a call.

Thank you.

Sincerely yours,

ATLAS CARPET MILLS, INC.

Mark A. Nestler
Vice President

MAN:jz

cc: Tracey Coward

United States Testing Company, Inc.
California Division
5555 TELEGRAPH ROAD, • LOS ANGELES, CALIFORNIA 90040 • (213) 723-7101
Laboratories in Principal Cities

REPORT OF TEST

ATLAS CARPET MILLS
2200 Saybrook Avenue
City of Commerce, CA 90040

FLAMMABILITY AND SMOKE EVALUATION
OF FLOOR COVERING MATERIALS

CARPET QUALITY:
38 OZ. CUT AND UNCUT TEXTURE

December 21, 1990

Dennis Trinidad

Dennis Trinidad
Test Technician

Yuk Lun Yeung

Yuk Lun Yeung
Test Technician

TEST REPORT NO. 185211

SIGNED FOR THE COMPANY

BY: Michael S. Elliott

Michael S. Elliott
Director/Fire Tech. Dept.

ms

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. NOTHING CONTAINED IN THIS REPORT SHALL MEAN THAT UNITED STATES TESTING COMPANY, INC., CONDUCTS ANY QUALITY CONTROL PROGRAM FOR THE CLIENT TO WHOM THIS TEST REPORT IS ISSUED. UNLESS SPECIFICALLY SPECIFIED, OUR REPORTS AND LETTERS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED, AND THEY AND THE NAME OF THE UNITED STATES TESTING COMPANY, INC. OR ITS SEALS OR INSIGNIA, ARE NOT TO BE USED UNDER ANY CIRCUMSTANCES IN ADVERTISING TO THE GENERAL PUBLIC AND MAY NOT BE USED IN ANY OTHER MANNER WITHOUT OUR PRIOR WRITTEN APPROVAL. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.

A Member of the SGS Group (Societe Generale de Surveillance)

REFERENCES

1. Client's Purchase Order Number 32242 dated October 4, 1990.

2. Client's confirmation copy dated November 30, 1990.

TEST REQUEST AND METHOD

The submitted carpet sample was tested for (A) Flammability in accordance with the procedures outlined in ASTM Designation E-648, "Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source". This test method is comparable to NFPA No. 253, and (B) Smoke Density in accordance with the procedures outlined in ASTM Designation E-662, "Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials". This test method is comparable to NFPA No. 258.

SAMPLE IDENTIFICATION

The sample tested was submitted and identified by the Client as:

Carpet Quality:	38 oz. Cut and Uncut Texture Floor Covering
Construction:	Cut and Uncut Texture
Pile Yarn:	100% Antron Nylon
Tufted Yarn Weight:	38 oz./sq.yd.
Backing: Primary:	Woven Polypropylene
Secondary:	Action Bac
Overall Weight:	68 oz./sq.yd.
Overall Thickness:	0.35"

Appr'd by ME

SGS

A. FLAMMABILITY PER ASTM E-648

PREPARATION AND CONDITIONING

The carpet sample material was cut into three sections 10" wide by 42" long and adhered to 1/4" inorganic reinforced cement board with a latex based adhesive.

Prior to clamping the floor covering system in the mounting frame, the specimens were conditioned at 21 ± 3°C and a relative humidity of 50 ± 5% and allowed to reach moisture equilibrium.

Note: Per the Client's request, the test specimens were adhered directly to the inorganic reinforced cement board substrates. Carpet sample was identified by the Client as material intended for direct glue down application.

TEST PROCEDURE

The test chamber was pre-heated for one hour and the radiant panel black body temperature verified to be within 5°C of the temperature established during calibration. The pilot burner was ignited and the specimen inserted into the chamber. After a two-minute pre-heat, the pilot burner flame was placed in contact with the specimen for ten minutes, then removed. The test was continued until all flaming ceased. The distance burned was measured and converted to Critical Radiant Heat Flux at flame out.

Appr'd by

B. ASTM E-662 SPECIFIC OPTICAL DENSITY OF SMOKE

PREPARATION AND CONDITIONING

The carpet sample was cut into six specimens 3" by 3" and prepared for testing as outlined in the aforementioned standard. Prior to insertion in the specimen holder, the specimens were dried for 24 hours at 140 ± 5°F and then conditioned to equilibrium at a temperature of 73 ± 5°F and a relative humidity of 50 ± 5%.

TEST PROCEDURE

The test chamber was preheated to 95 ± 4°F and all steady state conditions checked. Following placement of the specimen in the chamber and initiation of the test, light transmittance and time were plotted continuously with a multi-range recorder. The test, in the flaming and non-flaming mode, was continued for a minimum of 3 minutes after the recording of minimum light transmittance. The chamber was then evacuated of smoke particulate until maximum light transmittance was reached. That value was recorded as clear beam and is used in calculating the Maximum Corrected Specific Optical Density of Smoke.

Appr'd by

SGS

TEST RESULTS

A. Flammability per ASTM E-648

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Specimen Number	Burn Distance Centimeters	Critical Radiant Heat Flux, Watts/cm^2
1	39.0	0.54
2	34.0	0.63
3	36.0	0.59
Average	36.0	0.59

OBSERVATIONS

Discoloration and charring was observed in advance of the flame front on all specimens. Moderate smoke evolution was noted.

REQUIREMENTS

The 1988 Edition of the NFPA "Life Safety Code" provides the following classification for regulating interior flooring materials in specified occupancies:

CLASS I - Includes materials which have a minimum Critical Radiant Flux of 0.45 watts/cm^2.

CLASS II - Includes materials which have a minimum Critical Radiant Flux of 0.22 watts/cm^2.

Examples of the requirements for application of interior flooring material in exits and corridors for specified occupancies are listed below.

Health Care Centers
Class I in new facilities and for newly installed flooring materials in existing facilities.

Child Care Centers
Class I or II in both new and existing facilities.

Hotels and Dormitories
Class I or II in both new and existing facilities.

Apartments
Class I or II in both new and existing facilities.

Appr'd by MG

TEST RESULTS

B. Smoke Density per ASTM E-662

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	95	122	109
2	98	132	120
3	82	132	121
Average	92	129	117

Non-Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	22	241	236
2	20	237	234
3	18	249	247
Average	20	242	239

Legend:

Specific Optical Density: Ds
Maximum Specific Optical Density: Dm
Maximum Specific Optical Density Corrected: Dm Corr.

OBSERVATIONS

In the flaming mode, test specimens exhibited surface discoloration, charring, bubbling and melting of the pile yarn upon contact with the flame tiplets. Flaming drips were noted throughout the test period.
In the non-flaming mode, test specimens exhibited surface discoloration, charring, swelling, melting and bubbling upon exposure to the heat source.
In the flaming mode, maximum smoke evolution occurred at an average time of 10 minutes and in the non-flaming mode, 20 minutes.

Appr'd by

JM Lynne Wallcovering
ADAM JAMES Textiles

J.M. Lynne Co., Inc.
979 Third Avenue
Room 1405
New York, NY 10022
212 751 3258

Janaury 16, 1991

DEPOLO DUNBAR INC.
330 West 42nd Street
New York, New York 10036

Att: Judy Gordon

RE: CEDEL

Dear Ms. Gordon,

As per your request we certify that the wallcovering pattern listed below has been tested for fire hazard classification as per ASTM-E-84, with the following results.

BOURGET 28173-89

VESCOM ~~KASTRUP 28144-89~~

Flame Spread..... 20
Smoke Developed.... 65

If you have further questions or if I can be of additional assistance do not hesitate to call.

Very truly yours,

Richard Carlino
Sales Representative

RC;mah

(a) The space containing the combustible partitions does not exceed 5,000 sq. ft. in area within a noncombustible enclosure having a fire-resistance rating of at least one hour.

(b) The space is in a single tenancy.

(c) Glass or slow burning plastic is used for glazing.

27-347 (26-504.9) **FOLDING PARTITIONS.** Folding partitions shall not be used as partitions that are required by this code to have a fire-resistance rating.

(a) **Construction group I** - In buildings of construction group I, folding partitions may be used if they are constructed of noncombustible materials, or of fire retardant treated wood, or are constructed of noncombustible frame covered with fabric that has a class A interior finish rating. Where partitions of combustible materials are permitted by section 27-346 of this article, folding partitions may also be constructed of combustible materials. Where doors constructed of materials having a class C interior finish rating are permitted by section 27-348 of this article, folding doors may be constructed of combustible materials.

(b) **Construction group II** - In buildings of construction group II, folding partitions may be constructed of combustible materials, surfaced with interior finish materials meeting the requirements of section 27-348 of this article.

[redacted]

(a) **Definition** - For the purposes of this section, interior finish shall mean those materials that form the exposed interior surfaces of a building and that are part of or affixed to walls, fixed or folding partitions, ceilings and other construction elements.

(b) **Classification** - Interior finish materials shall be classified in accordance with the surface flame-spread rating obtained as prescribed in the provisions of reference standard RS 5-5. Where an interior finish material is comprised of 2 or more materials laminated, glued, nailed, or otherwise secured together, the test rating for flame spread shall be based upon the composite of the materials in the form in which it will be used in construction. Interior finish materials shall be grouped in the following classes, in accordance with their surface flame-spread characteristics:

[redacted]

[redacted]	[redacted]
B	26 to 75
C	76 to 225
D	Over 225

(c) **Requirements** - Interior finishes and exposed structural or construction materials shall have a flame-spread rating not greater than that designated the class prescribed for the various occupancy groups in which they are use., as listed in Table 5- 4. Exceptions to these requirements are:

(1) Finish flooring and floor coverings, which are subject to the requirements of section 27-351.

(2) Wall coverings and coatings that are less than 0.036 in total thickness, when applied directly to a noncombustible, or fire-retardant treated wood, substrate.

(3) Exposed structural members and planking in buildings of class II-A construction, which may be left exposed in any room or space, except in exits.

(4) 20% of the aggregate wall and ceiling area of any room, space, or corridor required to have a class A or B rating may be finished with materials having a class C rating. This allowance shall include the area of doors, folding partitions, windows, glazing, skylights, luminous ceilings, trim, bases, chair rails, panels, moldings, etc. This exception shall not operate as a waiver of other requirements of this code relating to opening protectives.

(5) When a sprinkler system is provided in any room or space, is installed in compliance with the construction provisions of subchapter 17 of this chapter, interior finish materials may be one class higher in flame-spread rating than required by Table 5-4.

Armstrong

March 4, 1991

Mr. Jim Mileto
DePolo Dunbar Architects
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto:

Subject: Cedel Project
World Trade Center
New York, New York

Thank you for speaking with me on Friday, March 1 regarding the subject project. As per our discussion, Armstrong Cirrus Travertone #589 with Armstrong Suprafine grid meets all of the requirements of the fire codes of the World Trade Center and the Port Authority of New York and New Jersey.

In addition, may I further state that this product is a Class A product as per ASTM E 1264 and Federal Specification SS-S-118B. The product also contains a Flame Spread of 25 or under and is UL labeled. This product can, with great assurance, be used at the World Trade Center; as we have previously used this and other Travertone products at the World Trade Center since it's inception approximately 20 years ago.

If I can be of further assistance, please feel free to call upon me and, once again, thank you for your interest in Armstrong products.

Very truly yours,

Robert A. Baram

R. A. Baram
Territory Manager
Architectural Building Products Division

JAK

VICRTEX
INCORPORATED

DESIGNERS, MANUFACTURERS and DISTRIBUTORS of QUALITY WALLCOVERINGS, FABRICS and ACOUSTICAL SYSTE

Date March 4, 1991

In accordance with your request, we do hereby certify that our pattern LW 1110 from the Imported Fabrics Vol 5 Collection is Class "A" material rated for Fire Hazard Classification with ASTM-E-84 tunnel test method for flammability, as follows:

Flame Spread	[redacted]
Fuel Contributed	-
Smoke Developed	0

We trust the above is the information required and if we can be of any further assistance, please do not hesitate to call.

Very truly yours,

FORBO-VICRTEX INC.

James J. Maher
Sr. Vice President

JJM/do

A FORBO GROUP COMPANY

969 THIRD AVENUE, NEW YORK, NY 10022 • TEL: (212) 838-5336 • FAX: (212) 838-5993

LEVOLOR

FLAMMABILITY TEST CERTIFICATIONS

PRODUCT DESCRIPTION	NFPA 701	UL214	BFD IX-1	NYC	CA TITLE 19
Vertical Fabric, Baja Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Flanders Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Precious Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Reprise Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Inspiration Pattern	*	*	Pass	Pass	*
Vertical PVC Vane, PVC Groover	Pass	Pass	Pass	Pass	Pass
Tech Shade, Sheerweave	*	*	Pass	*	*
Tech Shade, Basket & Twill Weave	Pass	Pass	Pass	Pass	Pass
Polyester coated Aluminum, Slat or Vane**	Pass	Pass	Pass	Pass	Pass
Acrylic coated Aluminum, Slat or Vane**	Pass	Pass	Pass	Pass	Pass

* Material under testing as of 8/20/90

** To our knowledge no standard or established test criteria have been developed to evaluate flammability of lift cords, ladders, or plastic appearance parts as they are used in horizontal or vertical blinds. These components constitute less than 5 wt.% and are not considered to contribute to the overall flammability of the product.

D E S I G N T E X

March 7, 1991

DesignTex Fabrics Inc.

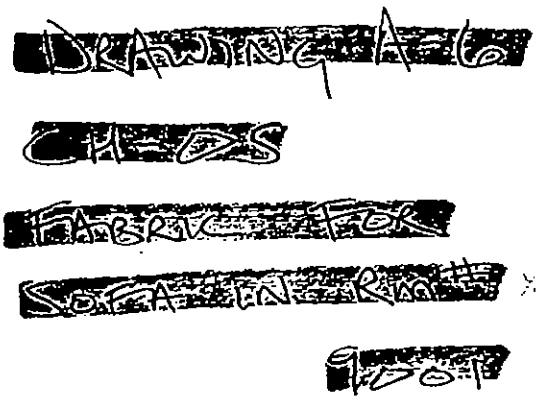
56-08 37th Avenue

P.O. Box 7708

Woodside, NY 11377

(718) 335-9000

Fax (718) 335-1553



Mr. Jim Miletto
Depolo Dunbar
330 West 42nd St.
NYC, NY 10036

Project: "Cedel" World Trade Center

Dear Mr. Miletto,

Thank you for your interest in style #1708-302 Radio City. I am happy to advise you that the above fabric can be flame proofed to pass the Port Authority NY, NJ fire test.

If you require any additional information, please do not hesitate to contact me.

Yours Very Truly,

Barry Skolnik
DesignTex

THE LACKAWANNA LEATHER CO.
P. O. Box 939
Conover, N. C. 28613-0939
704/322-2015

Artisan

Ref.: P.O.# 2717 Mandarin

Gentlemen:

This is to certify that Lackawanna leathers meet the following flammability codes:

BIFMA Flammability Standard F-1-1978 (Rev. A80)

California Technical Bulletin 117/E

U.F.A.C. Classification (I & II)

Boston Code

Port Authority of N.Y./N.J. (Method 5903)

FAA Specification #FAR 23.853

If you have any questions, please feel free to call.

Very truly yours,
LACKAWANNA LEATHER COMPANY

Wilhelm M. Bley
Manager

WB/df

GS Associates Inc.
IDCNY
30-20 Thomson Avenue
Long Island City, NY 11101
(718) 937-1880

March 11, 1991

Mr. Jim Mileto
dePolo/Dunbar Incorporated
330 West 42nd Street
New York, New York 10036

Re: Cedel, S.A.
One World Trade Center

Dear Mr. Mileto:

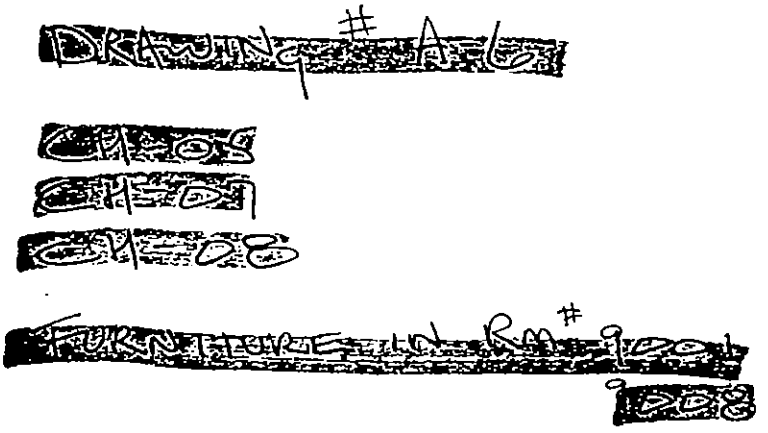
As per our telephone conversation, the Brayton Furniture line of Clou Sofa and Trasio Chair Collection can be upgraded with Isoguard Foam to meet all Port Authority fire codes.

If I can be of further assistance, please call.

Very truly yours,

Joe Solinsky

/js



Maharam

DRAWING #'S

CHECK

FABRIC FOR TASK SEATING

RM # 9009

March 4, 1991

Mr Jim Melito
DePolo Dunbar
330 West 42 Street
New York NY 10036

Dear Jim:

We are delighted you have selected our 54" 75% Modacrylic, 25% Nylon, Safety Pinwheel color #145 Poppy.

Please note, these fabrics meet the requirements of Port Authority of New York - New Jersey.

If you require actual test reports, please let me know.

Best regards,

Linda.

Linda Namias

LN/lm

979 Third Avenue
Suite 1223
New York, NY 10022
212 753-5440

Safety Series/3 meets requirements of Boston Fire Code — Port Authority of New York, New Jersey — NFPA 701 Vertical Test — California Register — Aircraft Compartment Interiors.

To keep your Safety Series/2 library complete, we suggest that you immediately request replacements for any color cuttings removed. Please call our toll-free WATS line:

1-800-645-3943
Extension 233 — Sample Department

Ask for replacements by pattern, color number, and color name (Example: Safety Melange, #142 Midnight) or attach the identification card removed from the swatch you have used to your letterhead and mail to:

Maharam
P.O. Box 300/Rasons Court
Hauppauge, NY 11788

Replacement cuttings will be sent by return mail.

Important — When your replacement cuttings arrive, please insert them immediately next to the appropriate color reference square. In that way your library will always be complete and accurate.

TECHNICAL INFORMATION

FLAME RETARDANCE DATA:	Tunnel Test Surface Ratings — **Class A Rating** ASTM-E84 — ANS #2.5 NFPA 255 — UL #723 — UBC #42.1 — UFAC — Cal. Reg. #CS-191-53, Bulletin #117 Safety Series/2 meets the requirements of the San Francisco Bureau of Building Inspection, General Approval No. 258 M42.33.	
CLASSIFICATION TABLE:	Flame Spread Rate Fuel Contributed Factor Smoke Developed	10 15 25
UPHOLSTERY WEAR TEST DATA:	Resistance to Abrasion — Wyzenbeek Method NAFM Requirements Safety Series/2	 15,000 Double Rubs 50,000 Double Rubs
FAA REGULATIONS:	Please inquire about necessary treatments available to comply with these requirements.	
CLEANING CODE:	Code S — Only mild, pure, water-free dry cleaning solvents may be used for cleaning this fabric. Cleaning by a professional furniture service is recommended. As with all upholstery fabrics, it is extremely important to PRE-TEST your cleaning method on a hidden area of the fabric to determine if the color bleeds, or if the fabric shrinks. When in doubt, seek the help of a professional furniture cleaner.	
LIGHT FASTNESS DATA:	A.A.T.C.C. Method NAFM Requirements Safety Series/2	16A 40 Hrs. 40+ Hrs.

Price List

Width	Pattern	Bolt Yardage (60 yards or more)	Cut Yardage
54"	**Safety Melange**	$_____ per yard	$_____ per yard
54"	**Safety Mosaic**	$_____ per yard	$_____ per yard
54"	**Safety Pinwheel**	$_____ per yard	$_____ per yard
54"	**Safety Texture**	$_____ per yard	$_____ per yard
54"	**Safety Twill Dot**	$_____ per yard	$_____ per yard

All Prices F.O.B. Hauppauge, New York

The samples in this book represent pattern/color standards. Since no two lots can be color matched identically, there may be a slight variation at time of your order. We will, however, always attempt to ship a satisfactory commercial match. Should an exact match be

Atelier International, Ltd.
235 Express Street
Plainview, NY 11803
Telephone 516/935-6700
Telex 4758142
Telefax 516/935-6711

ai

March 8, 1991

Attention: Jim Mileto
DePolo Dunbar

New York and New Jersey Port Authority

Re: Ai Serenissimo Table.

No components of the Serenissimo table are flammable and should be acceptable to New York and New Jersey Port Authority. We would suggest though that a description of the table be submitted to the New York and New Jersey Port Authority and acceptance be verified in writing.

Re: Tentazione

Due to manufacturing difficulties compliance is not possible.

In the past we have successfully submitted the Le Corbusier pieces covered on leather. Since a precedent exists, this product is virtually assured of immediate compliance.

Sincerely,

Robert Ferraro
Research & Development Manager

cc: Z. Reyes

Fax Transmittal

Atelier International, Ltd.
International Design Center
30-20 Thomson Ave.
Long Island City, NY 11101
Telephone: 718/392-0300
Telefax: 718/392-1593

ai

To: DE PAO DUNBAR	Date: 3/18/91
Attn: JIM MILETO	Fax No.:
From: ZULEYKA REYES	No. of Pages:
Re: SERENISSIMO TABLE	Please advise if any pages are missing or illegible.

DEAR JIM,
FOLLOWING IS INFO ON THE TABLE.
I OUTLINED THE PARTS EXPLAINING PROCESS.

HOPE IT'LL HELP.

THANKS

ZULEYKA

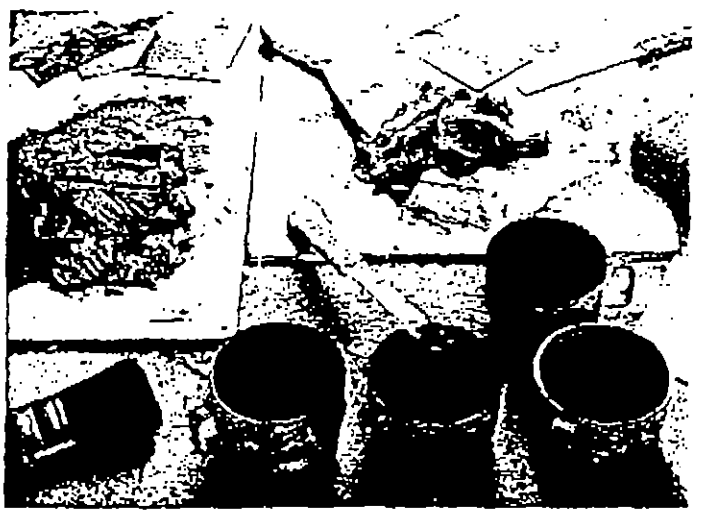
ai

Atelier International, Ltd.
235 Express Street
Plainview, NY 11803
Telephone: 516 935-8700
Telex 4758142

ACCENTS INTERNATIONAL

Encaustic Finishes: Also known as Venetian stucco," the encaustic technique has been used by Italian artisans for hundreds of years. The method - unsurpassed to this day - yields a unique chromatic range of pigments/ colors which can be applied to certain furniture designs. Derived from the colors and detail inherent in the landscape and figure painting of eighteenth-century fine artist Francesco Guardi (Venice, 1712 to 1793), encaustic is the symbolic expression of authentic Venetian art during its period of greatest splendor. Encaustic employs an exceptionally fine sand plaster mix, processed through a number of controlled stages. The coloring stage is executed by mixing natural soils with fluid limewash and plaster. The limewash burns the color, aiding it as it dries. (Hence, the Latin term encaustic is derived from the Greek word meaning "to burn.")

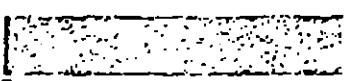
In a later stage, known as "floating," modern-day artisans sweep the sand plaster by hand over the furniture, with a spatula, blending the colors unevenly into the mix. The result is the distinctive surface and look of encaustic - and of historic Italian craftsmanship.



eparation of the colors

low

Blue



Green

Pink

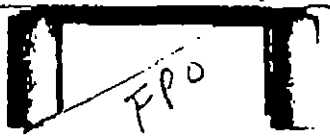
1

Gray

White

Pale Blue

Serenissimo



Model: Serenissimo
HS 200 Square table, 49.6" x 49.6"
HS 210 Square table, 57.1" x 57.1"
HS 220 Square table, 62.2" x 62.2"
■ HS 300 Rectangular table, 98.2" x 38.6"
■ HS 310 Rectangular table, 88.2" x 49.6"
HS 320 Rectangular table, 118.1" x 43.3"
HS 330 Rectangular table, 118.1" x 48"
HS 400 Round table, 57.1" diameter
HS 410 Round table, 62.2" diameter
Designers: Lella and Massimo Vignelli and David Law
Date of Design: 1985
Model Description: A collection of tables with glass tops supported by steel columns finished with Venetian stucco. Recipient of the 1987 Gold IBD and ROSCOE Awards.
Construction: Plate-glass tops are freely supported by 3 or 4 cylindrical steel legs; interconnected by a steel framework. Cylindrical steel legs are covered with hand-applied colored stucco in traditional encaustic technique which produces a variegated finish. Opalescent grey and bronze glass tops are 0.47" thick; opalescent white and translucent glass tops are 0.59"
Finishes: *Glass Tops:* clear, grey or bronze or opalescent white, opalescent grey or opalescent bronze. *Note:* clear grey or bronze glass; and opalescent grey or bronze glass are not available on round tables (HS400, HS 410)
Frame: natural finish, non-rust metal; *Stucco legs:* white, pale blue, blue, green, pink, ochre, oxide, grey, or coral.
Specify: *Model:* number; *Top:* finish and color; *Legs:* color.
Order Code:
CGL Clear Glass
OGL Opalescent Glass
Companion Pieces: Serenissimo Executive Conference Tables, Serenissimo Executive Desks, Serenissimo 36 Low Tables, Soffio di Vento Storage System.
Shipping: Best way. Shipped in 5 or 6 crates. See shipping information pg. 6, and cartoning/crating charges pg. 8. All tables require field assembly at additional cost.
Note:
1: Check elevator dimensions for delivery of table tops.
2: Available by special request with holes to accomodate wireway connections.
3: Special glass sizes available for all bases except three cylinder base (for round top). A special size round table can be designed by specifying the base to an HS 200, HS 210 or HS 220. Contact your Sales Representative for details.
■ Available from Quick-ship program for model HS300 and HS310 in blue, green and grey legs.

TESTING - DATA SHEET

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-8944

COMPANY SUBMITTING SAMPLE:

Name: Spinneybeck Inc

Address: 405 N French Rd

Amherst, NY 14130

Telephone #: 800-482-7777/716-691-2840
Margot D'Ambrogio

CLIENT'S IDENTIFICATION: Saddle P.O. # 858

DRAWING #

DATE SAMPLES RECEIVED: 7/14/89 TEST REPORT #: 87134-1

TEST PERFORMED: NFPA 260A - 1983

Cigarette Ignition Resistance of Fabric Intended For Use in Upholstered Furniture

GOVMARK TEST RESULTS

Specimen #	Ignition	Char Length Inches (Vertical Panel)
1	None	0.0 *
2	None	0.0 *
3	None	0.0 *

THE PORT AUTHORITY OF ... & NJ
... QUALITY ASSURANCE
... STANDARDS
Office Copy
MAR 26 1991
W-1636(3)
RECEIVED
... PORTS ADMINISTRATION
TENANT CONSTRUCTION REVIEW UNIT

CRITERIA:

Class I: For each specimen the Char Length shall be less than 1.75" (indicates propensity to resist cigarette ignition in conjunction with standard foam filling material)

Class II: If any specimen ignites, or has a Char Length of 1.75" or greater (indicates inability to resist cigarette ignition in conjunction with standard foam filling material)

CONCLUSION: The above results indicate a Class I rating.

I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified by NFPA 260A - 1983.

DATE TESTING COMPLETED 7/24/89

jd

SIGNATURE OF TEST SUPERVISOR
THE GOVMARK ORGANIZATION, INC.

* Cigarette self-extinguished after 2 lightings.

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-8044

COMPANY SUBMITTING SAMPLES:

Name: Spinneybeck Inc

Address: 405 N French Rd
Amherst, NY 14120

Telephone #: 800-482-7777/716-691-2840
Margot D'Ambrosio

CLIENT'S IDENTIFICATION: Saddle

PO #858

)ATE SAMPLES RECEIVED: 7/14/89

TEST REPORT #: 87134

:EST PERFORMED: California Technical Bulletin 117, Section E

GOVMARK TEST RESULTS

FACE Specimen #	Burning Time (Seconds)	BACK Specimen #	Burning Time (Seconds)
1	NRBT-DNI	6	NRBT-DNI
2	NRBT-DNI	7	NRBT-DNI
3	NRBT-DNI	8	NRBT-DNI
4	NRBT-DNI	9	NRBT-DNI
5	NRBT-DNI	10	NRBT-DNI
VERAGE of specimens which burned		AVERAGE of specimens which burned	

EQUIREMENTS: Plain Surface Materials - 3.5 Seconds Minimum Average Burning Time
Raised Surface Materials - 7.0 Seconds Minimum Average Burning Time
- OR -
No Recordable Burning Time (NRBT)

(PLANATION OF ABBREVIATIONS USED:
NRBT-DNI - Did Not Ignite when exposed to test ignition source.
NRBT-IBE - Ignited But Extinguished before burning through stopcord.
NRBT-SF - Surface Flash Only -- Stopcord not burned and no burning, charring, or fusing of the base fabric.
NRBT-TSF - Timed Surface Flash -- Stopcord burned but no burning, charring or fusing of the base fabric.

)NCLUSION: Complies with the stated requirements.

certify that the above results were obtained after testing specimens
e procedures and equipment specified by California Technical
holstery Fabrics, dated January 1980.

TE TESTING COMPLETED 7/18/89

jd

March 18, 1991

Mr. Gerry Gaeta
Port Authority
Approvals & Construction
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
One World Trade Center
d/D Project #1150

Dear Mr. Gaeta:

As per your request, enclosed are the flammability testing letters for the Port Authority of NY/NJ fire codes certifying the Cedel furniture, material and fabric. Also enclosed is a copy of the flame-spread rating in accordance with the New York Building Laws Section 26-504.10.

If you have any questions or require additional information, please do not hesitate to call.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

Jim Mileto

JM:dd
encs.

DRAWING #A-5
EPOI
CARPET
ALL AREAS
EXCEPT 9004, 9005

ATLAS
CARPET MILLS, INC.

Corporate Headquarters
2200 Saybrook Avenue, Los Angeles, California 90040

March 11, 1991

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 7

To Jim Mileto	From MARK NESTLER
Co. de Polo Dunbar	Co. ATLAS CARPET
Dept.	Phone #
Fax #	Fax #

Mr. Jim Mileto
de Polo Dunbar Inc.
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto,

Tracey has asked if Atlas' Positano quality meets the criteria for flammability of the Port Authority of NY & NJ.

The answer is yes, as evidenced by the attached test results. However, please note that the Port Authority criteria you gave Tracey refers to carpeting assemblies. This would include all materials used in the installation, i.e. adhesives, tack strip, underlayment, etc., plus the carpet. In order to get that information, you would need to test all the materials together.

Again, Positano, on its own, does pass the criteria given to Tracey. If you have any questions, please give me a call.

Thank you.

Sincerely yours,

ATLAS CARPET MILLS, INC.

Mark A. Neatler
Vice President

MAN:jz

cc: Tracey Coward

United States Testing Company, Inc.
California Division
5555 TELEGRAPH ROAD, • LOS ANGELES, CALIFORNIA 90040 • (213) 723-7161
Laboratories in Principal Cities

SGS

REPORT OF TEST

ATLAS CARPET MILLS
2200 Saybrook Avenue
City of Commerce, CA 90040

FLAMMABILITY AND SMOKE EVALUATION
OF FLOOR COVERING MATERIALS

CARPET QUALITY:
38 OZ. CUT AND UNCUT TEXTURE

December 21, 1990

Dennis Trinidad

Dennis Trinidad
Test Technician

TEST REPORT NO. 185211
SIGNED FOR THE COMPANY

YUK LUN YEUNG

Yuk Lun Yeung
Test Technician

BY: Michael S. Elliott
Michael S. Elliott
Director/Fire Tech. Dept.

ms

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. NOTHING CONTAINED IN THIS REPORT SHALL MEAN THAT UNITED STATES TESTING COMPANY, INC., CONDUCTS ANY QUALITY CONTROL PROGRAM FOR THE CLIENT TO WHOM THIS TEST REPORT IS ISSUED, UNLESS SPECIFICALLY SPECIFIED. OUR REPORTS AND LETTERS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED, AND THEY AND THE NAME OF THE UNITED STATES TESTING COMPANY, INC. OR ITS SEALS OR INSIGNIA, ARE NOT TO BE USED UNDER ANY CIRCUMSTANCES IN ADVERTISING TO THE GENERAL PUBLIC AND MAY NOT BE USED IN ANY OTHER MANNER WITHOUT OUR PRIOR WRITTEN APPROVAL. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.

REFERENCES

1. Client's Purchase Order Number 32242 dated October 4, 1990.

2. Client's confirmation copy dated November 30, 1990.

TEST REQUEST AND METHOD

The submitted carpet sample was tested for (A) Flammability in accordance with the procedures outlined in ASTM Designation E-648, "Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source". This test method is comparable to NFPA No. 253, and (B) Smoke Density in accordance with the procedures outlined in ASTM Designation E-662, "Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials". This test method is comparable to NFPA No. 258.

SAMPLE IDENTIFICATION

The sample tested was submitted and identified by the Client as:

Carpet Quality:	38 oz. Cut and Uncut Texture Floor Covering
Construction:	Cut and Uncut Texture
Pile Yarn:	100% Antron Nylon
Tufted Yarn Weight:	38 oz./sq.yd.
Backing: Primary:	Woven Polypropylene
Secondary:	Action Bac
Overall Weight:	68 oz./sq.yd.
Overall Thickness:	0.35"

Appr'd by ME

SGS

A. FLAMMABILITY PER ASTM E-648

PREPARATION AND CONDITIONING

The carpet sample material was cut into three sections 10" wide by 42" long and adhered to 1/4" inorganic reinforced cement board with a latex based adhesive.

Prior to clamping the floor covering system in the mounting frame, the specimens were conditioned at 21 ± 3°C and a relative humidity of 50 ± 5% and allowed to reach moisture equilibrium.

Note: Per the Client's request, the test specimens were adhered directly to the inorganic reinforced cement board substrates. Carpet sample was identified by the Client as material intended for direct glue down application.

TEST PROCEDURE

The test chamber was pre-heated for one hour and the radiant panel black body temperature verified to be within 5°C of the temperature established during calibration. The pilot burner was ignited and the specimen inserted into the chamber. After a two-minute pre-heat, the pilot burner flame was placed in contact with the specimen for ten minutes, then removed. The test was continued until all flaming ceased. The distance burned was measured and converted to Critical Radiant Heat Flux at flame out.

Appr'd by MEE

B. ASTM E-662 SPECIFIC OPTICAL DENSITY OF SMOKE

PREPARATION AND CONDITIONING

The carpet sample was cut into six specimens 3" by 3" and prepared for testing as outlined in the aforementioned standard. Prior to insertion in the specimen holder, the specimens were dried for 24 hours at 140 ± 5°F and then conditioned to equilibrium at a temperature of 73 ± 5°F and a relative humidity of 50 ± 5%.

TEST PROCEDURE

The test chamber was preheated to 95 ± 4°F and all steady state conditions checked. Following placement of the specimen in the chamber and initiation of the test, light transmittance and time were plotted continuously with a multi-range recorder. The test, in the flaming and non-flaming mode, was continued for a minimum of 3 minutes after the recording of minimum light transmittance. The chamber was then evacuated of smoke particulate until maximum light transmittance was reached. That value was recorded as clear beam and is used in calculating the Maximum Corrected Specific Optical Density of Smoke.

Appr'd by MEe

SGS

TEST RESULTS

A. Flammability per ASTM E-648

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Specimen Number	Burn Distance Centimeters	Critical Radiant Heat Flux, Watts/cm^2
1	39.0	0.54
2	34.0	0.63
3	36.0	0.59
Average	36.0	0.59

OBSERVATIONS

Discoloration and charring was observed in advance of the flame front on all specimens. Moderate smoke evolution was noted.

REQUIREMENTS

The 1988 Edition of the NFPA "Life Safety Code" provides the following classification for regulating interior flooring materials in specified occupancies:

CLASS I - Includes materials which have a minimum Critical Radiant Flux of 0.45 watts/cm^2.

CLASS II - Includes materials which have a minimum Critical Radiant Flux of 0.22 watts/cm^2.

Examples of the requirements for application of interior flooring material in exits and corridors for specified occupancies are listed below.

Health Care Centers
Class I in new facilities and for newly installed flooring materials in existing facilities.

Child Care Centers
Class I or II in both new and existing facilities.

Hotels and Dormitories
Class I or II in both new and existing facilities.

Apartments
Class I or II in both new and existing facilities.

Appr'd by

UNITED STATES TESTING COMPANY, INC. 185211 12/21/90

SGS

TEST RESULTS

B. Smoke Density per ASTM E-662

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	95	122	109
2	98	132	120
3	82	132	121
Average	92	129	117

Non-Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	22	241	236
2	20	237	234
3	18	249	247
Average	20	242	239

Legend:

Specific Optical Density: Ds
Maximum Specific Optical Density: Dm
Maximum Specific Optical Density Corrected: Dm Corr.

OBSERVATIONS

In the flaming mode, test specimens exhibited surface discoloration, charring, bubbling and melting of the pile yarn upon contact with the flame tiplets. Flaming drips were noted throughout the test period.
In the non-flaming mode, test specimens exhibited surface discoloration, charring, swelling, melting and bubbling upon exposure to the heat source.
In the flaming mode, maximum smoke evolution occurred at an average time of 10 minutes and in the non-flaming mode, 20 minutes.

Appr'd by

JM Lynne Wallcovering
ADAM JAMES Textiles

[redacted]

J.M. Lynne Co., Inc.
979 Third Avenue
Room 1405
New York, NY 10022
212 751 5758

Janaury 16, 1991

[redacted]

DEPOLO DUNBAR INC.
330 West 42nd Street
New York, New York 10036

Att: Judy Gordon

RE: CEDEL

Dear Ms. Gordon,

As per your request we certify that the wallcovering pattern listed below has been tested for fire hazard classification as per ASTM-E-84, with the following results.

BOURGET 28173·89

VESCOM ~~KASTRUP 28144-89~~

[redacted]
Smoke Developed.... 65

If you have further questions or if I can be of additional assistance do not hesitate to call.

Very truly yours,

Richard Carlino
Sales Representative

RC:mah

(a) The space containing the combustible partitions does not exceed 5,000 sq. ft. in area within a noncombustible enclosure having a fire-resistance rating of at least one hour.

(b) The space is in a single tenancy.

(c) Glass or slow burning plastic is used for glazing.

27-347 (26-504.9) **FOLDING PARTITIONS.** Folding partitions shall not be used as partitions that are required by this code to have a fire-resistance rating.

(a) **Construction group I** - In buildings of construction group I, folding partitions may be used if they are constructed of noncombustible materials, or of fire retardant treated wood, or are constructed of noncombustible frame covered with fabric that has a class A interior finish rating. Where partitions of combustible materials are permitted by section 27-346 of this article, folding partitions may also be constructed of combustible materials. Where doors constructed of materials having a class C interior finish rating are permitted by section 27-348 of this article, folding doors may be constructed of combustible materials.

(b) **Construction group II** - In buildings of construction group II, folding partitions may be constructed of combustible materials, surfaced with interior finish materials meeting the requirements of section 27-348 of this article.

[redacted]

(a) **Definition** - For the purposes of this section, interior finish shall mean those materials that form the exposed interior surfaces of a building and that are part of or affixed to walls, fixed or folding partitions, ceilings and other construction elements.

(b) **Classification** - Interior finish materials shall be classified in accordance with the surface flame-spread rating obtained as prescribed in the provisions of reference standard RS 5-5. Where an interior finish material is comprised of 2 or more materials laminated, glued, nailed, or otherwise secured together, the test rating for flame spread shall be based upon the composite of the materials in the form in which it will be used in construction. Interior finish materials shall be grouped in the following classes, in accordance with their surface flame-spread characteristics:

[redacted]	[redacted]
A	0 to 25
B	26 to 75
C	76 to 225
D	Over 225

(c) **Requirements** - Interior finishes and exposed structural or construction materials shall have a flame-spread rating not greater than that designated for the class prescribed for the various occupancy groups in which they are used as listed in Table 5- 4. Exceptions to these requirements are:

(1) Finish flooring and floor coverings, which are subject to the requirements of section 27-351.

(2) Wall coverings and coatings that are less than 0.036 in total thickness, when applied directly to a noncombustible, or fire-retardant treated wood, substrate.

(3) Exposed structural members and planking in buildings of class II-A construction, which may be left exposed in any room or space, except in exits.

(4) 20% of the aggregate wall and ceiling area of any room, space, or corridor required to have a class A or B rating may be finished with materials having a class C rating. This allowance shall include the area of doors, folding partitions, windows, glazing, skylights, luminous ceilings, trim, bases, chair rails, panels, moldings, etc. This exception shall not operate as a waiver of other requirements of this code relating to opening protectives.

(5) When a sprinkler system is provided in any room or space, [illegible] is installed in compliance with the construction provisions of subchapter 17 of this chapter, interior finish materials may be one class higher in flame-spread rating than required by Table 5-4.

Armstrong

March 4, 1991

Mr. Jim Mileto
DePolo Dunbar Architects
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto:

Subject: Cedel Project
World Trade Center
New York, New York

Thank you for speaking with me on Friday, March 1 regarding the subject project. As per our discussion, Armstrong Cirrus Travertone #589 with Armstrong Suprafine grid meets all of the requirements of the fire codes of the World Trade Center and the Port Authority of New York and New Jersey.

In addition, may I further state that this product is a Class A product as per ASTM E 1264 and Federal Specification SS-S-118B. The product also contains a Flame Spread of 25 or under and is UL labeled. This product can, with great assurance, be used at the World Trade Center; as we have previously used this and other Travertone products at the World Trade Center since it's inception approximately 20 years ago.

If I can be of further assistance, please feel free to call upon me and, once again, thank you for your interest in Armstrong products.

Very truly yours,

Robert A. Baram

R. A. Baram
Territory Manager
Architectural Building Products Division

JAK

VICRTEX
INCORPORATED

DESIGNERS, MANUFACTURERS and DISTRIBUTORS of QUALITY WALLCOVERINGS, FABRICS and ACOUSTICAL SYST

[redacted]

Date March 4, 1991

[redacted]

In accordance with your request, we do hereby certify that our pattern LW 1110 from the Imported Fabrics Vol 5 Collection is Class "A" material rated for Fire Hazard Classification with ASTM-E-84 tunnel test method for flammability, as follows:

[redacted]

Fuel Contributed	-
Smoke Developed	0

We trust the above is the information required and if we can be of any further assistance, please do not hesitate to call.

Very truly yours,

FORBO-VICRTEX INC.

James J. Maher
Sr. Vice President

JJM/do

969 THIRD AVENUE, NEW YORK, NY 10022 • TEL: (212) 838-5336 • FAX: (212) 838-5993

LEVOLOR

FLAMMABILITY TEST CERTIFICATIONS

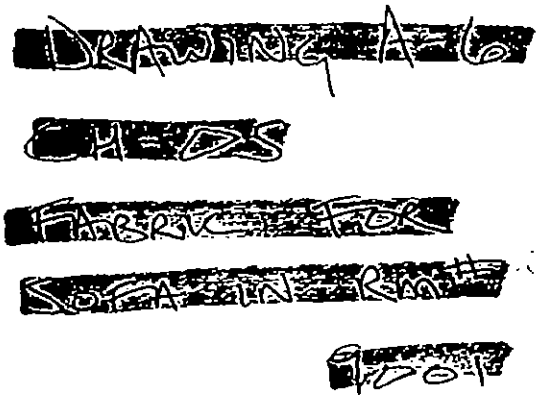
PRODUCT DESCRIPTION	NFPA 701	UL214	BFD IX-1	NYC	CA TITLE 19
Vertical Fabric, Baja Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Flanders Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Precious Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Reprise Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Inspiration Pattern	*	*	Pass	Pass	*
Vertical PVC Vane, PVC Groover	Pass	Pass	Pass	Pass	Pass
Tech Shade, Sheerweave	*	*	Pass	*	*
Tech Shade, Basket & Twill Weave	Pass	Pass	Pass	Pass	Pass
Polyester coated Aluminum, Slat or Vane**	Pass	Pass	Pass	Pass	Pass
Acrylic coated Aluminum, Slat or Vane**	Pass	Pass	Pass	Pass	Pass

* Material under testing as of 8/20/90

** To our knowledge no standard or established test criteria have been developed to evaluate flammability of lift cords, ladders, or plastic appearance parts as they are used in horizontal or vertical blinds. These components constitute less than 5 wt.% and are not considered to contribute to the overall flammability of the product.

D E S I G N T E X

March 7, 1991



DesignTex Fabrics Inc.

56-08 37th Avenue

P.O. Box 7708

Woodside, NY 11377

(718) 335-9000

Fax (718) 335-1553

Mr. Jim Miletto
Depolo Dunbar
330 West 42nd St.
NYC, NY 10036

Project: "Cedel" World Trade Center

Dear Mr. Miletto,

Thank you for your interest in style #1708-302 Radio City. I am happy to advise you that the above fabric can be flame proofed to pass the Port Authority NY, NJ fire test.

If you require any additional information, please do not hesitate to contact me.

Yours Very Truly,

Barry Skolnik
DesignTex

THE LACKAWANNA LEATHER CO.
P. O. Box 939
Conover, N. C. 28613-0939
704/322-2015

Artisan

Ref.: P.O.# 2717 Mandarin

Gentlemen:

This is to certify that Lackawanna leathers meet the following flammability codes:

BIFMA Flammability Standard F-1-1978 (Rev. A80)

California Technical Bulletin 117/E

U.F.A.C. Classification (I & II)

Boston Code

Port Authority of N.Y./N.J. (Method 5903)

FAA Specification #FAR 23.853

If you have any questions, please feel free to call.

Very truly yours,
LACKAWANNA LEATHER COMPANY

Wilhelm M. Bley
Manager

WB/df

GS Associates Inc.
IDCNY
30-20 Thomson Avenue
Long Island City, NY 11101
(718) 937-1880

March 11, 1991

Mr. Jim Mileto
dePolo/Dunbar Incorporated
330 West 42nd Street
New York, New York 10036

Re: Cedel, S.A.
One World Trade Center

Dear Mr. Mileto:

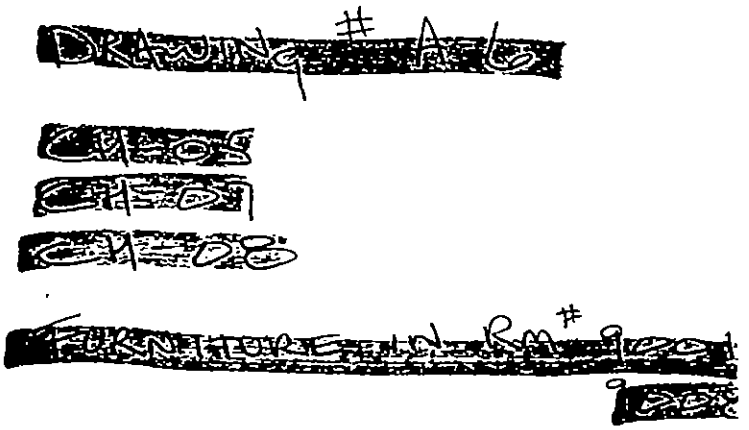
As per our telephone conversation, the Brayton Furniture line of Clou Sofa and Trasio Chair Collection can be upgraded with Isoguard Foam to meet all Port Authority fire codes.

If I can be of further assistance, please call.

Very truly yours,

Joe Solinsky

/js



Maharam

DRAWING A-6
CH-04
FABRIC FOR TASK
SEATING
RM # 9009

March 4, 1991

Mr Jim Melito
DePolo Dunbar
330 West 42 Street
New York NY 10036

Dear Jim:

We are delighted you have selected our 54" 75% Modacrylic, 25% Nylon, Safety Pinwheel color #145 Poppy.

Please note, these fabrics meet the requirements of Port Authority of New York - New Jersey.

If you require actual test reports, please let me know.

Best regards,

Linda.

Linda Namias

LN/lm

979 Third Avenue
Suite 1223
New York, NY 10022
212 753-5440

Safety Series/3 meets requirements of Boston Fire Code — Port Authority of New York, New Jersey — NFPA 701 Vertical Test — California Register — Aircraft Compartment Interiors.

To keep your Safety Series/2 library complete, we suggest that you immediately request replacements for any color cuttings removed. Please call our toll-free WATS line:

1-800-645-3943
Extension 233 — Sample Department

Ask for replacements by pattern, color number, and color name (Example: Safety Melange, #142 Midnight) or attach the identification card removed from the swatch you have used to your letterhead and mail to:

Maharam
P.O. Box 300/Rasons Court
Hauppauge, NY 11788

Replacement cuttings will be sent by return mail.

Important — When your replacement cuttings arrive, please insert them immediately next to the appropriate color reference square. In that way your library will always be complete and accurate.

TECHNICAL INFORMATION

FLAME RETARDANCE DATA:	Tunnel Test Surface Ratings — **Class A Rating** ASTM-E84 — ANS #2.5 NFPA 255 — UL #723 — UBC #42.1 — UFAC — Cal. Reg. #CS-191-53, Bulletin #117 Safety Series/2 meets the requirements of the San Francisco Bureau of Building Inspection, General Approval No. 258 M42.33.	
CLASSIFICATION TABLE:	Flame Spread Rate	10
	Fuel Contributed Factor	15
	Smoke Developed	25
UPHOLSTERY WEAR TEST DATA:	Resistance to Abrasion — Wyzenbeek Method	
	NAFM Requirements	15,000 Double Rubs
	Safety Series/2	50,000 Double Rubs
FAA REGULATIONS:	Please inquire about necessary treatments available to comply with these requirements.	
CLEANING CODE:	Code S — Only mild, pure, water-free dry cleaning solvents may be used for cleaning this fabric. Cleaning by a professional furniture service is recommended. As with all upholstery fabrics, it is extremely important to PRE-TEST your cleaning method on a hidden area of the fabric to determine if the color bleeds, or if the fabric shrinks. When in doubt, seek the help of a professional furniture cleaner.	
LIGHT FASTNESS DATA:	A.A.T.C.C. Method	16A
	NAFM Requirements	40 Hrs.
	Safety Series/2	40+ Hrs.

Price List

Width	Pattern	Bolt Yardage (60 yards or more)	Cut Yardage
54"	**Safety Melange**	$_____ per yard	$_____ per yard
54"	**Safety Mosaic**	$_____ per yard	$_____ per yard
54"	**Safety Pinwheel**	$_____ per yard	$_____ per yard
54"	**Safety Texture**	$_____ per yard	$_____ per yard
54"	**Safety Twill Dot**	$_____ per yard	$_____ per yard

All Prices F.O.B. Hauppauge, New York

The samples in this book represent pattern/color standards. Since no two lots can be color matched identically, there may be a slight

Atelier International, Ltd.
235 Express Street
Plainview, N.Y. 11803
Telephone 516/935-6700
Telex 4758142
Telefax 516/935-6711

ai

March 8, 1991

Attention: Jim Mileto
DePolo Dunbar

New York and New Jersey Port Authority

Re: Ai Serenissimo Table.

No components of the Serenissimo table are flammable and should be acceptable to New York and New Jersey Port Authority. We would suggest though that a description of the table be submitted to the New York and New Jersey Port Authority and acceptance be verified in writing.

Re: Tentazione

Due to manufacturing difficulties compliance is not possible.

In the past we have successfully submitted the Le Corbusier pieces covered on leather. Since a precedent exists, this product is virtually assured of immediate compliance.

Sincerely,

Robert Ferraro
Research & Development Manager

cc: Z. Reyes

Fax Transmittal

Atelier International, Ltd.
International Design Center
30-20 Thomson Ave.
Long Island City, NY 11101
Telephone: 718/392-0300
Telefax: 718/392-1593

ai

To: DEPOO DUNBAR	Date: 3/18/91
Attn: JIM MILETO	Fax No.:
From: ZULEYKA REYES	No. of Pages:
Re: SERENISSIMO TABLE	Please advise if any pages are missing or illegible.

DEAR JIM,
FOLLOWING IS INFO ON THE TABLE.
I OUTLINED THE PARTS EXPLAINING PROCESS.

HOPE IT'LL HELP.

THANKS

ZULEYKA

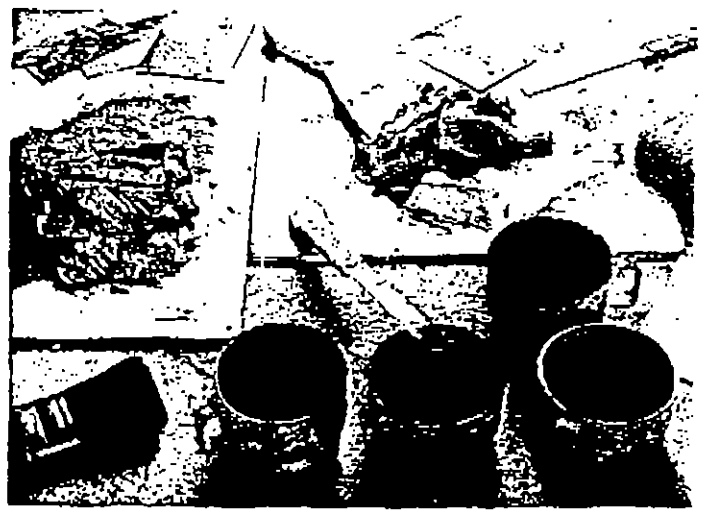
ai

Atelier International, Ltd.
235 Express Street
Plainview, NY 11803
Telephone: 516 935-8700
Telex 4758142

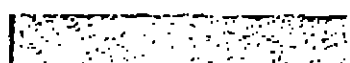
ACCENTS INTERNATIONAL

Encaustic Finishes: Also known as Venetian stucco, the encaustic technique has been used by Italian artisans for hundreds of years. The method - unsurpassed to this day - results in a unique chromatic range of elemental colors which can be applied to certain furniture designs. Derived from the colors and detail inherent in the landscape and figure painting of eighteenth-century fine artist Francesco Guardi (Venice, 1712 to 1793), encaustic is the symbolic expression of authentic Venetian art during its period of greatest splendor. Encaustic employs an exceptionally fine sand plaster mix, processed through a number of controlled stages. The coloring stage is executed by mixing natural soils with fluid limewash and plaster. The limewash burns the color, affixing it as it dries. (Hence, the Latin term encaustic is derived from the Greek word meaning "to burn.") In a later stage, known as "floating," modern-day artisans smooth the sand plaster by hand over the furniture, with a spatula, blending the colors unevenly into the mix. The result is the distinctive surface and look of encaustic - and of historic Italian craftsmanship.

reparation of the colors



Blue



Green

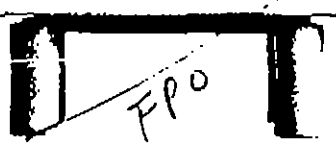
Pink

Gray

White

Pale Blue

Serenissimo



Model: Serenissimo
HS 200 Square table, 49.6" x 49.6"
HS 210 Square table, 57.1" x 57.1"
HS 220 Square table, 62.2" x 62.2"
■ HS 300 Rectangular table, 88.2" x 38.6"
■ HS 310 Rectangular table, 88.2" x 49.6"
HS 320 Rectangular table, 118.1" x 43.3"
HS 330 Rectangular table, 118.1" x 46"
HS 400 Round table, 57.1" diameter
HS 410 Round table, 62.2" diameter
Designers: Lella and Massimo Vignelli and David Law
Date of Design: 1985
Model Description: A collection of tables with glass tops supported by steel columns finished with Venetian stucco. Recipient of the 1987 Gold IBD and ROSCOE Awards.
Construction: Plate-glass tops are freely supported by 3 or 4 cylindrical steel legs, interconnected by a steel framework. Cylindrical steel legs are covered with hand-applied colored stucco in traditional encaustic technique which produces a variegated finish. Opalescent grey and bronze glass tops are 0.47" thick; opalescent white and translucent glass tops are 0.59"
Finishes: *Glass Tops:* clear, grey or bronze or opalescent white, opalescent grey or opalescent bronze. *Note:* clear grey or bronze glass; and opalescent grey or bronze glass are not available on round tables (HS400, HS 410)
Frame: natural finish, non-rust metal; *Stucco legs:* white, pale blue, blue, green, pink, ochre, oxide, grey, or coral.
Specify: *Model:* number; *Top:* finish and color; *Legs:* color.
Order Code:
CGL Clear Glass
OGL Opalescent Glass
Companion Pieces: Serenissimo Executive Conference Tables, Serenissimo Executive Desks, Serenissimo 36 Low Tables, Soffio di Vento Storage System.
Shipping: Best way. Shipped in 5 or 6 crates. See shipping information pg. 6, and carroning/crating charges pg. 8. All tables require field assembly at additional cost.
Note:
1: Check elevator dimensions for delivery of table tops.
2: Available by special request with holes to accomodate wireway connections.
3: Special glass sizes available for all bases except three cylinder base (for round top). A special size round table can be designed by specifying the base to an HS 200, HS 210 or HS 220. Contact your Sales Representative for details.
■ Available from Quick-ship program for model HS300 and HS310 in blue, green and grey legs.

TESTING - DATA SHEET

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-8044

COMPANY SUBMITTING SAMPLE

Name: Spinneybeck Inc

Address: 405 N French Rd

Amherst, NY 14120

Telephone #: 800-482-7777/716-691-2840
Margot D'Ambrogio

CLIENT'S IDENTIFICATION: Saddle P.O. # 858

DATE SAMPLES RECEIVED: 7/14/89 TEST REPORT #: 87134-1

TEST PERFORMED: NFPA 260A - 1983

Cigarette Ignition Resistance of Fabric Intended For Use in Upholstered Furniture

GOVMARK TEST RESULTS

Specimen #	Ignition	Char Length Inches (Vertical Panel)
1	None	0.0 *
2	None	0.0 *
3	None	0.0 *

CRITERIA:

Class I: For each specimen the Char Length shall be less than 1.75" (indicates propensity to resist cigarette ignition in conjunction with standard foam filling material)

Class II: If any specimen ignites, or has a Char Length of 1.75" or greater (indicates inability to resist cigarette ignition in conjunction with standard foam filling material)

CONCLUSION: The above results indicate a Class I rating.

I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified by NFPA 260A - 1983.

DATE TESTING COMPLETED 7/24/89

jd

SIGNATURE OF TEST SUPERVISOR
THE GOVMARK ORGANIZATION, INC.

* Cigarette self-extinguished after 2 lightings.

UPHOLSTERY FAB...C TESTING - CA BULLETIN 117 SECTION E #2

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-8044

COMPANY SUBMITTING SAMPLES

Name: Spinneybeck Inc

Address: 405 N French Rd

Amherst, NY 14120

Telephone #: 800-482-7777/716-691-2840
Margot D'Ambrosio

CLIENT'S IDENTIFICATION: Saddle

PO #858

DATE SAMPLES RECEIVED: 7/14/89

TEST REPORT #: 87134

TEST PERFORMED: California Technical Bulletin 117, Section E

GOVMARK TEST RESULTS

FACE Specimen #	Burning Time (Seconds)	BACK Specimen #	Burning Time (Seconds)
1	NRBT-DNI	6	NRBT-DNI
2	NRBT-DNI	7	NRBT-DNI
3	NRBT-DNI	8	NRBT-DNI
4	NRBT-DNI	9	NRBT-DNI
5	NRBT-DNI	10	NRBT-DNI
VERAGE of specimens which burned		AVERAGE of specimens which burned	

REQUIREMENTS: Plain Surface Materials - 3.5 Seconds Minimum Average Burning Time
Raised Surface Materials - 7.0 Seconds Minimum Average Burning Time
- OR -
No Recordable Burning Time (NRBT)

EXPLANATION OF ABBREVIATIONS USED:

NRBT-DNI - Did Not Ignite when exposed to test ignition source.
NRBT-IBE - Ignited But Extinguished before burning through stopcord.
NRBT-SF - Surface Flash Only -- Stopcord not burned and no burning, charring, or fusing of the base fabric.
NRBT-TSF - Timed Surface Flash -- Stopcord burned but no burning, charring or fusing of the base fabric.

CONCLUSION: Complies with the stated requirements.

I certify that the above results were obtained after testing specimens [illegible] the procedures and equipment specified by California Technical [illegible] Upholstery Fabrics, dated January 1980.

DATE TESTING COMPLETED 7/18/89

jd

March 18, 1991

Mr. Gerry Gaeta
Port Authority
Approvals & Construction
One World Trade Center
New York, New York 10048

Re: Cedel, S.A.
One World Trade Center
d/D Project #1150

Dear Mr. Gaeta:

As per your request, enclosed are the flammability testing letters for the Port Authority of NY/NJ fire codes certifying the Cedel furniture, material and fabric. Also enclosed is a copy of the flame-spread rating in accordance with the New York Building Laws Section 26-504.10.

If you have any questions or require additional information, please do not hesitate to call.

Very truly yours,

dePOLO/DUNBAR INCORPORATED

Jim Mileto

JM:dd
encs.

DRAWING # A-5
PD-1
CARPET
ALL AREAS
EXCEPT 9004, 9003

ATLAS
CARPET MILLS, INC.

Corporate Headquarters
2200 Saybrook Avenue, Los Angeles, California 90040

March 11, 1991

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 7

To Jim Mileto	From MARK NESTLER
Co. de Polo Dunbar	Co. ATLAS CARPET
Dept.	Phone #
Fax #	Fax #

Mr. Jim Mileto
de Polo Dunbar Inc.
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto,

Tracey has asked if Atlas' Positano quality meets the criteria for flammability of the Port Authority of NY & NJ.

The answer is yes, as evidenced by the attached test results. However, please note that the Port Authority criteria you gave Tracey refers to carpeting assemblies. This would include all materials used in the installation, i.e. adhesives, tack strip, underlayment, etc., plus the carpet. In order to get that information, you would need to test all the materials together.

Again, Positano, on its own, does pass the criteria given to Tracey. If you have any questions, please give me a call.

Thank you.

Sincerely yours,

ATLAS CARPET MILLS, INC.

Mark A. Nestler
Vice President

MAN:jz

cc: Tracey Coward

United States Testing Company, Inc.
California Division
5555 TELEGRAPH ROAD, • LOS ANGELES, CALIFORNIA 90040 • (213) 723-7101
Laboratories in Principal Cities

REPORT OF TEST

ATLAS CARPET MILLS
2200 Saybrook Avenue
City of Commerce, CA 90040

FLAMMABILITY AND SMOKE EVALUATION
OF FLOOR COVERING MATERIALS

CARPET QUALITY:
38 OZ. CUT AND UNCUT TEXTURE

December 21, 1990

Dennis Trinidad

Dennis Trinidad
Test Technician

YUK LUN YEUNG

Yuk Lun Yeung
Test Technician

TEST REPORT NO. 185211
SIGNED FOR THE COMPANY

BY: Michael S. Elliott
Michael S. Elliott
Director/Fire Tech. Dept.

ms

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. NOTHING CONTAINED IN THIS REPORT SHALL MEAN THAT *UNITED STATES TESTING COMPANY, INC.*, CONDUCTS ANY QUALITY CONTROL PROGRAM FOR THE CLIENT TO WHOM THIS TEST REPORT IS ISSUED. UNLESS SPECIFICALLY SPECIFIED, OUR REPORTS AND LETTERS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED, AND THEY AND THE NAME OF THE UNITED STATES TESTING COMPANY, INC. OR ITS SEALS OR INSIGNIA, ARE NOT TO BE USED UNDER ANY CIRCUMSTANCES IN ADVERTISING TO THE GENERAL PUBLIC AND MAY NOT BE USED IN ANY OTHER MANNER WITHOUT OUR PRIOR WRITTEN APPROVAL. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.

A Member of the SGS Group (Societe Generale de Surveillance)

REFERENCES

1. Client's Purchase Order Number 32242 dated October 4, 1990.

2. Client's confirmation copy dated November 30, 1990.

TEST REQUEST AND METHOD

The submitted carpet sample was tested for (A) Flammability in accordance with the procedures outlined in ASTM Designation E-648, "Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source". This test method is comparable to NFPA No. 253, and (B) Smoke Density in accordance with the procedures outlined in ASTM Designation E-662, "Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials". This test method is comparable to NFPA No. 258.

SAMPLE IDENTIFICATION

The sample tested was submitted and identified by the Client as:

Carpet Quality:	38 oz. Cut and Uncut Texture Floor Covering
Construction:	Cut and Uncut Texture
Pile Yarn:	100% Antron Nylon
Tufted Yarn Weight:	38 oz./sq.yd.
Backing: Primary:	Woven Polypropylene
Secondary:	Action Bac
Overall Weight:	68 oz./sq.yd.
Overall Thickness:	0.35"

Appr'd by ME

SGS

A. FLAMMABILITY PER ASTM E-648

PREPARATION AND CONDITIONING

The carpet sample material was cut into three sections 10" wide by 42" long and adhered to 1/4" inorganic reinforced cement board with a latex based adhesive.

Prior to clamping the floor covering system in the mounting frame, the specimens were conditioned at 21 ± 3°C and a relative humidity of 50 ± 5% and allowed to reach moisture equilibrium.

Note: Per the Client's request, the test specimens were adhered directly to the inorganic reinforced cement board substrates. Carpet sample was identified by the Client as material intended for direct glue down application.

TEST PROCEDURE

The test chamber was pre-heated for one hour and the radiant panel black body temperature verified to be within 5°C of the temperature established during calibration. The pilot burner was ignited and the specimen inserted into the chamber. After a two-minute pre-heat, the pilot burner flame was placed in contact with the specimen for ten minutes, then removed. The test was continued until all flaming ceased. The distance burned was measured and converted to Critical Radiant Heat Flux at flame out.

Appr'd by

SGS

B. ASTM E-662 SPECIFIC OPTICAL DENSITY OF SMOKE

PREPARATION AND CONDITIONING

The carpet sample was cut into six specimens 3" by 3" and prepared for testing as outlined in the aforementioned standard. Prior to insertion in the specimen holder, the specimens were dried for 24 hours at 140 ± 5°F and then conditioned to equilibrium at a temperature of 73 ± 5°F and a relative humidity of 50 ± 5%.

TEST PROCEDURE

The test chamber was preheated to 95 ± 4°F and all steady state conditions checked. Following placement of the specimen in the chamber and initiation of the test, light transmittance and time were plotted continuously with a multi-range recorder. The test, in the flaming and non-flaming mode, was continued for a minimum of 3 minutes after the recording of minimum light transmittance. The chamber was then evacuated of smoke particulate until maximum light transmittance was reached. That value was recorded as clear beam and is used in calculating the Maximum Corrected Specific Optical Density of Smoke.

Appr'd by MEe

SGS

TEST RESULTS

A. Flammability per ASTM E-648

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Specimen Number	Burn Distance Centimeters	Critical Radiant Heat Flux, Watts/cm^2
1	39.0	0.54
2	34.0	0.63
3	36.0	0.59
Average	36.0	0.59

OBSERVATIONS

Discoloration and charring was observed in advance of the flame front on all specimens. Moderate smoke evolution was noted.

REQUIREMENTS

The 1988 Edition of the NFPA "Life Safety Code" provides the following classification for regulating interior flooring materials in specified occupancies:

CLASS I - Includes materials which have a minimum Critical Radiant Flux of 0.45 watts/cm^2.

CLASS II - Includes materials which have a minimum Critical Radiant Flux of 0.22 watts/cm^2.

Examples of the requirements for application of interior flooring material in exits and corridors for specified occupancies are listed below.

Health Care Centers
Class I in new facilities and for newly installed flooring materials in existing facilities.

Child Care Centers
Class I or II in both new and existing facilities.

Hotels and Dormitories
Class I or II in both new and existing facilities.

Apartments
Class I or II in both new and existing facilities.

Appr'd by MEe

UNITED STATES TESTING COMPANY, INC. 185211 12/21/90

SGS

TEST RESULTS

B. Smoke Density per ASTM E-662

Sample: 38 oz. Cut and Uncut Texture Floor Covering

Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	95	122	109
2	98	132	120
3	82	132	121
Average	92	129	117

Non-Flaming Mode

Test Specimen Number	Ds @4 min.	Dm	Dm Corr.
1	22	241	236
2	20	237	234
3	18	249	247
Average	20	242	239

Legend:

Specific Optical Density: Ds
Maximum Specific Optical Density: Dm
Maximum Specific Optical Density Corrected: Dm Corr.

OBSERVATIONS

In the flaming mode, test specimens exhibited surface discoloration, charring, bubbling and melting of the pile yarn upon contact with the flame tiplets. Flaming drips were noted throughout the test period.
In the non-flaming mode, test specimens exhibited surface discoloration, charring, swelling, melting and bubbling upon exposure to the heat source.
In the flaming mode, maximum smoke evolution occurred at an average time of 10 minutes and in the non-flaming mode, 20 minutes.

Appr'd by

JM Lynne Wallcovering
ADAM JAMES Textiles

[redacted]

J.M. Lynne Co., Inc.
979 Third Avenue
Room 1405
New York, NY 10022
212 751 3258

Janaury 16, 1991

[redacted]

DEPOLO DUNBAR INC.
330 West 42nd Street
New York, New York 10036

Att: Judy Gordon

RE: CEDEL

Dear Ms. Gordon,

As per your request we certify that the wallcovering pattern listed below has been tested for fire hazard classification as per ASTM-E-84, with the following results.

BOURGET 28173-89

VESCOM ~~EASTRIP 28144-89~~

[redacted] 20
Smoke Developed.... 65

If you have further questions or if I can be of additional assistance do not hesitate to call.

Very truly yours,

Richard Carlino
Sales Representative

RC;mah

(a) The space containing the combustible partitions does not exceed 5,000 sq. ft. in area within a noncombustible enclosure having a fire-resistance rating of at least one hour.

(b) The space is in a single tenancy.

(c) Glass or slow burning plastic is used for glazing.

27-347 (26-504.9) **FOLDING PARTITIONS.** Folding partitions shall not be used as partitions that are required by this code to have a fire-resistance rating.

(a) **Construction group I** - In buildings of construction group I, folding partitions may be used if they are constructed of noncombustible materials, or of fire retardant treated wood, or are constructed of noncombustible frame covered with fabric that has a class A interior finish rating. Where partitions of combustible materials are permitted by section 27-346 of this article, folding partitions may also be constructed of combustible materials. Where doors constructed of materials having a class C interior finish rating are permitted by section 27-348 of this article, folding doors may be constructed of combustible materials.

(b) **Construction group II** - In buildings of construction group II, folding partitions may be constructed of combustible materials, surfaced with interior finish materials meeting the requirements of section 27-348 of this article.

[redacted]

(a) **Definition** - For the purposes of this section, interior finish shall mean those materials that form the exposed interior surfaces of a building and that are part of or affixed to walls, fixed or folding partitions, ceilings and other construction elements.

(b) **Classification** - Interior finish materials shall be classified in accordance with the surface flame-spread rating obtained as prescribed in the provisions of reference standard RS 5-5. Where an interior finish material is comprised of 2 or more materials laminated, glued, nailed, or otherwise secured together, the test rating for flame spread shall be based upon the composite of the materials in the form in which it will be used in construction. Interior finish materials shall be grouped in the following classes, in accordance with their surface flame-spread characteristics:

*See Memo 1/11/72 (Construction Class I Flooring).

B	26 to 75
C	76 to 225
D	Over 225

(c) **Requirements** - Interior finishes and exposed structural or construction materials shall have a flame-spread rating not greater than that designated the class prescribed for the various occupancy groups in which they are us as listed in Table 5- 4. Exceptions to these requirements are:

(1) Finish flooring and floor coverings, which are subject to the requirements of section 27-351.

(2) Wall coverings and coatings that are less than 0.036 in total thickness, when applied directly to a noncombustible, or fire-retardant treated wood, substrate.

(3) Exposed structural members and planking in buildings of class II-A construction, which may be left exposed in any room or space, except in exits.

(4) 20% of the aggregate wall and ceiling area of any room, space, or corridor required to have a class A or B rating may be finished with materials having a class C rating. This allowance shall include the area of doors, folding partitions, windows, glazing, skylights, luminous ceilings, trim, bases, chair rails, panels, moldings, etc. This exception shall not operate as a waiver of other requirements of this code relating to opening protectives.

(5) When a sprinkler system is provided in any room or space, is installed in compliance with the construction provisions of subchapter 17 of this chapter, interior finish materials may be one class higher in flame-spread rating than required by Table 5-4.

[redacted]

Armstrong

[redacted]

March 4, 1991

[redacted]

Mr. Jim Mileto
DePolo Dunbar Architects
330 West 42nd Street
New York, NY 10036

Dear Mr. Mileto:

Subject: Cedel Project
World Trade Center
New York, New York

Thank you for speaking with me on Friday, March 1 regarding the subject project. As per our discussion, Armstrong Cirrus Travertone #589 with Armstrong Suprafine grid meets all of the requirements of the fire codes of the World Trade Center and the Port Authority of New York and New Jersey.

In addition, may I further state that this product is a Class A product as per ASTM E 1264 and Federal Specification SS-S-118B. The product also contains a Flame Spread of 25 or under and is UL labeled. This product can, with great assurance, be used at the World Trade Center; as we have previously used this and other Travertone products at the World Trade Center since it's inception approximately 20 years ago.

If I can be of further assistance, please feel free to call upon me and, once again, thank you for your interest in Armstrong products.

Very truly yours,

Robert A. Baram

R. A. Baram
Territory Manager
Architectural Building Products Division

JAK

VICRTEX
INCORPORATED

DESIGNERS, MANUFACTURERS and DISTRIBUTORS of QUALITY WALLCOVERINGS, FABRICS and ACOUSTICAL SYSTEM

[redacted]

Date March 4, 1991

[redacted]

In accordance with your request, we do hereby certify that our pattern LW 1110 from the Imported Fabrics Vol 5 Collection is Class "A" material rated for Fire Hazard Classification with ASTM-E-84 tunnel test method for flammability, as follows:

[redacted]

Fuel Contributed	-
Smoke Developed	0

We trust the above is the information required and if we can be of any further assistance, please do not hesitate to call.

Very truly yours,

FORBO-VICRTEX INC.

James J. Maher
Sr. Vice President

JJM/do

LEVOLOR

FLAMMABILITY TEST CERTIFICATIONS

PRODUCT DESCRIPTION	NFPA 701	UL214	BFD IX-1	[redacted]	CA TITLE 19
Vertical Fabric, Baja Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Flanders Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Precious Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Reprise Pattern	Pass	Pass	Pass	Pass	Pass
Vertical Fabric, Inspiration Pattern	*	*	Pass	Pass	*
Vertical PVC Vane, PVC Groover	Pass	Pass	Pass	Pass	Pass
Tech Shade, Sheerweave	*	*	Pass	*	*
Tech Shade, Basket & Twill Weave	Pass	Pass	Pass	Pass	Pass
Polyester coated Aluminum, Slat or Vane**	Pass	Pass	Pass	[redacted]	Pass
Acrylic coated Aluminum, Slat or Vane**	Pass	Pass	Pass	[redacted]	Pass

* Material under testing as of 8/20/90

** To our knowledge no standard or established test criteria have been developed to evaluate flammability of tilt cords, ladders, or plastic appearance parts as they are used in horizontal or vertical blinds. These components constitute less than 5 wt.% and are not considered to contribute to the overall flammability of the product.

D E S I G N T E X

March 7, 1991

DesignTex Fabrics Inc.

56-08 37th Avenue

P.O. Box 7708

Woodside, NY 11377

(718) 335-9090

Fax (718) 335-1553

[redacted]

Mr. Jim Miletto
Depolo Dunbar
330 West 42nd St.
NYC, NY 10036

Project: "Cedel" World Trade Center

Dear Mr. Miletto,

Thank you for your interest in style #1708-302 Radio City. I am happy to advise you that the above fabric can be flame proofed to pass the Port Authority NY, NJ fire test.

If you require any additional information, please do not hesitate to contact me.

Yours Very Truly,

Barry Skolnik
DesignTex

THE LACKAWANNA LEATHER CO.
P. O. Box 939
Conover, N. C. 28613-0939
704/322-2015

Artisan

Ref.: P.O.# 2717 Mandarin

Gentlemen:

This is to certify that Lackawanna leathers meet the following flammability codes:

BIFMA Flammability Standard F-1-1978 (Rev. A80)

California Technical Bulletin 117/E

U.F.A.C. Classification (I & II)

Boston Code

Port Authority of N.Y./N.J. (Method 5903)

FAA Specification #FAR 23.853

If you have any questions, please feel free to call.

Very truly yours,
LACKAWANNA LEATHER COMPANY

Wilhelm M. Bley
Manager

WB/df

GS Associates Inc.
IDCNY
30-20 Thomson Avenue
Long Island City, NY 11101
(718) 937-1880

March 11, 1991

Mr. Jim Mileto
dePolo/Dunbar Incorporated
330 West 42nd Street
New York, New York 10036

Re: Cedel, S.A.
One World Trade Center

Dear Mr. Mileto:

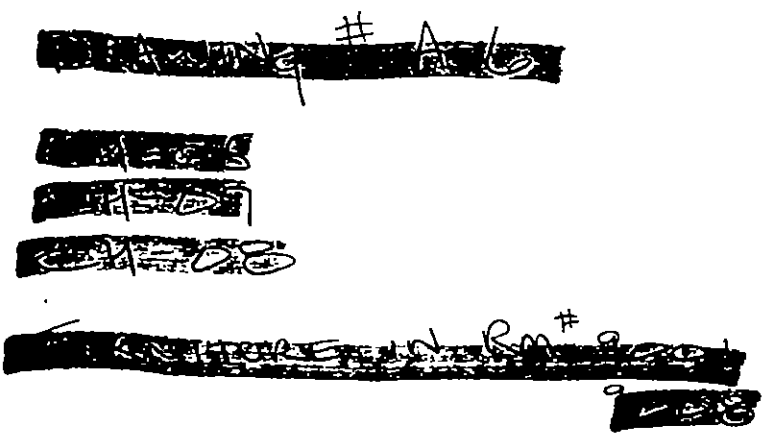
As per our telephone conversation, the Brayton Furniture line of Clou Sofa and Trasio Chair Collection can be upgraded with Isoguard Foam to meet all Port Authority fire codes.

If I can be of further assistance, please call.

Very truly yours,

Joe Solinsky

/js



Maharam

DRAWING A-6

CH-04

FABRIC FOR TASK SEATING

RM # 9009

March 4, 1991

Mr Jim Melito
DePolo Dunbar
330 West 42 Street
New York NY 10036

Dear Jim:

We are delighted you have selected our 54" 75% Modacrylic, 25% Nylon, Safety Pinwheel color #145 Poppy.

Please note, these fabrics meet the requirements of Port Authority of New York - New Jersey.

If you require actual test reports, please let me know.

Best regards,

Linda.

Linda Namias

LN/lm

979 Third Avenue
Suite 1223
New York, NY 10022
212 753-5440

Safety Series/3 meets requirements of Boston Fire Code — Port Authority of New York, New Jersey — NFPA 701 Vertical Test — California Register — Aircraft Compartment Interiors.

To keep your Safety Series/2 library complete, we suggest that you immediately request replacements for any color cuttings removed. Please call our toll-free WATS line:

1-800-645-3943
Extension 233 — Sample Department

Ask for replacements by pattern, color number, and color name (Example: Safety Melange, #142 Midnight) or attach the identification card removed from the swatch you have used to your letterhead and mail to:

Maharam
P.O. Box 300/Rasons Court
Hauppauge, NY 11788

Replacement cuttings will be sent by return mail.

Important — When your replacement cuttings arrive, please insert them immediately next to the appropriate color reference square. In that way your library will always be complete and accurate.

TECHNICAL INFORMATION

FLAME RETARDANCE DATA:	Tunnel Test Surface Ratings — **Class A Rating** ASTM-E84 — ANS #2.5 NFPA 255 — UL #723 — UBC #42.1 — UFAC — Cal. Reg. #CS-191-53, Bulletin #117 Safety Series/2 meets the requirements of the San Francisco Bureau of Building Inspection, General Approval No. 258 M42.33.	
CLASSIFICATION TABLE:	Flame Spread Rate Fuel Contributed Factor Smoke Developed	10 15 25
UPHOLSTERY WEAR TEST DATA:	Resistance to Abrasion — Wyzenbeek Method NAFM Requirements Safety Series/2	 15,000 Double Rubs 50,000 Double Rubs
FAA REGULATIONS:	Please inquire about necessary treatments available to comply with these requirements.	
CLEANING CODE:	Code S — Only mild, pure, water-free dry cleaning solvents may be used for cleaning this fabric. Cleaning by a professional furniture service is recommended. As with all upholstery fabrics, it is extremely important to PRE-TEST your cleaning method on a hidden area of the fabric to determine if the color bleeds, or if the fabric shrinks. When in doubt, seek the help of a professional furniture cleaner.	
LIGHT FASTNESS DATA:	A.A.T.C.C. Method NAFM Requirements Safety Series/2	16A 40 Hrs. 40+ Hrs.

Price List

Width	Pattern	Bolt Yardage (60 yards or more)	Cut Yardage
54"	**Safety Melange**	$_____ per yard	$_____ per yard
54"	**Safety Mosaic**	$_____ per yard	$_____ per yard
54"	**Safety Pinwheel**	$_____ per yard	$_____ per yard
54"	**Safety Texture**	$_____ per yard	$_____ per yard
54"	**Safety Twill Dot**	$_____ per yard	$_____ per yard

All Prices F.O.B. Hauppauge, New York

The samples in this book represent pattern/color standards. Since no two lots can be color matched identically, there may be a slight variation at time of your order. We will, however, always attempt to ship a satisfactory commercial match. Should an exact match b

Atelier International, Ltd.
235 Express Street
Plainview N.Y. 11803
Telephone 516/935-6700
Telex 4758142
Telefax 516/935-6711

ai

March 8, 1991

Attention: Jim Mileto
DePolo Dunbar

New York and New Jersey Port Authority

Re: Ai Serenissimo Table.

No components of the Serenissimo table are flammable and should be acceptable to New York and New Jersey Port Authority. We would suggest though that a description of the table be submitted to the New York and New Jersey Port Authority and acceptance be verified in writing.

Re: Tentazione

Due to manufacturing difficulties compliance is not possible.

In the past we have successfully submitted the Le Corbusier pieces covered on leather. Since a precedent exists, this product is virtually assured of immediate compliance.

Sincerely,

Robert Ferraro
Research & Development Manager

cc: Z. Reyes

Fax Transmittal

Atelier International, Ltd.
International Design Center
30-20 Thomson Ave.
Long Island City, NY 11101
Telephone: 718/392-0300
Telefax: 718/392-1593

ai

To: DEPAD DUNBAR	Date: 3/18/91
Attn: JIM MILETO	Fax No.:
From: ZULEYKA REYES	No. of Pages:
Re: SERENISSIMO TABLE	Please advise if any pages are missing or illegible.

DEAR JIM,
FOLLOWING IS INFO ON THE TABLE.
I OUTLINED THE PARTS EXPLAINING PROCESS.

HOPE IT'LL HELP.

THANKS

ZULEYKA

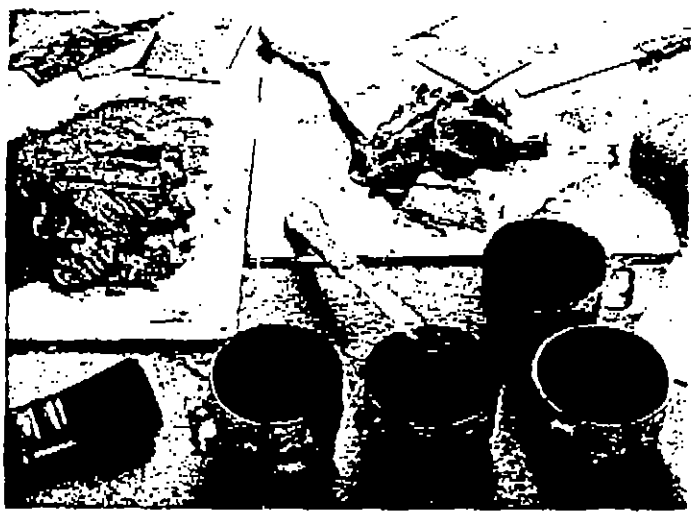
af

Atelier International, Ltd.
235 Express Street
Plainview, NY 11803
Telephone: 516 935-6700
Telex 4758142

ACERBIS INTERNATIONAL

Encaustо Finishes: Also known as Venetian stucco, the encaustо technique has been used by Italian artisans for hundreds of years. The method - unsurpassed to this day - results in a unique chromatic range of elemental colors which can be applied to certain furniture designs. Derived from the colors and detail inherent in the landscape and figure painting of eighteenth-century fine artist Francesco Guardi (Venice, 1712 to 1793), encaustо is the symbolic expression of authentic Venetian art during its period of greatest splendor. Encaustо employs an exceptionally fine sand plaster mix, processed through a number of controlled stages. The coloring stage is executed by mixing natural soils with fluid limewash and plaster. The limewash burns the color, altering it as it dries. (Hence, the Latin term encaustо is derived from the Greek word meaning "to burn.")

In a later stage, known as "floating," modern-day artisans smooth the sand plaster by hand over the furniture, with a spatula, blending the colors unevenly into the mix. The result is the distinctive surface and look of encaustо - and of historic Italian craftsmanship.



reparation of the colors

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Blue

Green

Pink

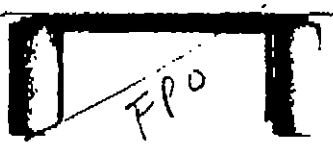
d

Gray

White

Pale Blue

Serenissimo



Model: Serenissimo
HS 200 Square table, 49.6" x 49.6"
HS 210 Square table, 57.1" x 57.1"
HS 220 Square table, 62.2" x 62.2"
■ HS 300 Rectangular table, 88.2" x 38.6"
■ HS 310 Rectangular table, 88.2" x 49.6"
HS 320 Rectangular table, 118.1" x 43.3"
HS 330 Rectangular table, 118.1" x 46"
HS 400 Round table, 57.1" diameter
HS 410 Round table, 62.2" diameter
Designers: Lella and Massimo Vignelli and David Law
Date of Design: 1986
Model Description: A collection of tables with glass tops supported by steel columns finished with Venetian stucco. Recipient of the 1987 Gold IBD and ROSCOE Awards.
Construction: Plate-glass tops are freely supported by 3 or 4 cylindrical steel legs, interconnected by a steel framework. Cylindrical steel legs are covered with hand-applied colored stucco in traditional encaustic technique which produces a variegated finish. Opalescent grey and bronze glass tops are 0.47" thick; opalescent white and translucent glass tops are 0.59"
Finishes: *Glass Tops:* clear, grey or bronze or opalescent white, opalescent grey or opalescent bronze. *Note:* clear grey or bronze glass; and opalescent grey or bronze glass are not available on round tables (HS400, HS 410)
Frame: natural finish, non-rust metal; *Stucco legs:* white, pale blue, blue, green, pink, ochre, oxide, grey, or coral.
Specify: *Model:* number; *Top:* finish and color; *Legs:* color.
Order Code:
CGL Clear Glass
OGL Opalescent Glass
Companion Pieces: Serenissimo Executive Conference Tables, Serenissimo Executive Desks, Serenissimo 36 Low Tables, Soffio di Vento Storage System.
Shipping: Best way. Shipped in 5 or 6 crates. See shipping information pg. 6, and cartoning/crating charges pg. 8. All tables require field assembly at additional cost.
Note:
1: Check elevator dimensions for delivery of table tops.
2: Available by special request with holes to accomodate wireway connections.
3: Special glass sizes available for all bases except three cylinder base (for round top). A special size round table can be designed by specifying the base to an HS 200, HS 210 or HS 220. Contact your Sales Representative for details.
■ Available from Quick-ship program for model HS300 and HS310 in blue, green and grey legs.

TESTING - DATA SHEET

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-8944

COMPANY SUBMITTING SAMPLE

Name: Spinneybeck Inc

Address: 405 N French Rd
Amherst, NY 14120

Telephone #: 800-482-7777/716-691-2840
Margot D'Ambrosio

CLIENT'S IDENTIFICATION: Saddle P.O. # 858

DATE SAMPLES RECEIVED: 7/14/89 TEST REPORT #: 87134-1

TEST PERFORMED: NFPA 260A - 1983

Cigarette Ignition Resistance of Fabric Intended For Use in Upholstered Furniture

GOVMARK TEST RESULTS

Specimen #	Ignition	Char Length Inches (Vertical Panel)
1	None	0.0 *
2	None	0.0 *
3	None	0.0 *

CRITERIA:

Class I: For each specimen the Char Length shall be less than 1.75" (indicates propensity to resist cigarette ignition in conjunction with standard foam filling material)

Class II: If any specimen ignites, or has a Char Length of 1.75" or greater (indicates inability to resist cigarette ignition in conjunction with standard foam filling material)

CONCLUSION: The above results indicate a Class I rating.

I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified by NFPA 260A - 1983.

DATE TESTING COMPLETED 7/24/89

jd

SIGNATURE OF TEST SUPERVISOR
THE GOVMARK ORGANIZATION, INC.

* Cigarette self-extinguished after 2 lightings.

The Govmark Organization, Inc.
P.O. Box 807
Bellmore, New York 11710
Tel: 516-293-8044

COMPANY SUBMITTING SAMPLES

Name: Spinneybeck Inc

Address: 405 N French Rd
Amherst, NY 14120

Telephone #: 800-482-7777/716-691-2840
Margot D'Ambrosio

CLIENT'S IDENTIFICATION: Saddle PO #858

DATE SAMPLES RECEIVED: 7/14/89 TEST REPORT #: 87134

TEST PERFORMED: California Technical Bulletin 117, Section E

GOVMARK TEST RESULTS

FACE Specimen #	Burning Time (Seconds)	BACK Specimen #	Burning Time (Seconds)
1	NRBT-DNI	6	NRBT-DNI
2	NRBT-DNI	7	NRBT-DNI
3	NRBT-DNI	8	NRBT-DNI
4	NRBT-DNI	9	NRBT-DNI
5	NRBT-DNI	10	NRBT-DNI
VERAGE of specimens which burned		AVERAGE of specimens which burned	

EQUIREMENTS: Plain Surface Materials - 3.5 Seconds Minimum Average Burning Time
Raised Surface Materials - 7.0 Seconds Minimum Average Burning Time
- OR -
No Recordable Burning Time (NRBT)

XPLANATION OF ABBREVIATIONS USED:

NRBT-DNI - Did Not Ignite when exposed to test ignition source.
NRBT-IBE - Ignited But Extinguished before burning through stopcord.
NRBT-SF - Surface Flash Only -- Stopcord not burned and no burning, charring, or fusing of the base fabric.
NRBT-TSF - Timed Surface Flash -- Stopcord burned but no burning, charring or fusing of the base fabric.

ONCLUSION: Complies with the stated requirements.

certify that the above results were obtained after testing specimens in [illegible]
e procedures and equipment specified by California Technical [illegible]
holstery Fabrics, dated January 1980.

TE TESTING COMPLETED 7/18/89
jd

Maharam

DRAWING A-6

CH-04

FABRIC FOR TASK SEATING

RM # 9009

March 4, 1991

Mr Jim Melito
DePolo Dunbar
330 West 42 Street
New York NY 10036

Dear Jim:

We are delighted you have selected our 54" 75% Modacrylic, 25% Nylon, Safety Pinwheel color #145 Poppy.

Please note, these fabrics meet the requirements of Port Authority of New York - New Jersey.

If you require actual test reports, please let me know.

Best regards,

Linda.

Linda Namias

LN/lm

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
MAR 26 1991 (3)
W-4636
ALTERATION APPLICATION

979 Third Avenue
Suite 1223
New York, NY 10022
212 753-5440

Safety Series/3 meets requirements of Boston Fire Code — Port Authority of New York, New Jersey — NFPA 701 Vertical Test — California Register — Aircraft Compartment Interiors.

To keep your Safety Series/2 library complete, we suggest that you immediately request replacements for any color cuttings removed. Please call our toll-free WATS line:

1-800-645-3943
Extension 233 — Sample Department

Ask for replacements by pattern, color number, and color name (Example: Safety Melange, #142 Midnight) or attach the identification card removed from the swatch you have used to your letterhead and mail to:

Maharam
P.O. Box 300/Rasons Court
Hauppauge, NY 11788

Replacement cuttings will be sent by return mail.

Important — When your replacement cuttings arrive, please insert them immediately next to the appropriate color reference square. In that way your library will always be complete and accurate.

TECHNICAL INFORMATION

FLAME RETARDANCE DATA:	Tunnel Test Surface Ratings — **Class A Rating** ASTM-E84 — ANS #2.5 NFPA 255 — UL #723 — UBC #42.1 — UFAC — Cal. Reg. #CS-191-53, Bulletin #117 Safety Series/2 meets the requirements of the San Francisco Bureau of Building Inspection, General Approval No. 258 M42.33.	
CLASSIFICATION TABLE:	Flame Spread Rate	10
	Fuel Contribuled Factor	15
	Smoke Developed	25
UPHOLSTERY WEAR TEST DATA:	Resistance to Abrasion — Wyzenbeek Method	
	NAFM Requirements	15,000 Double Rubs
	Safety Series/2	50,000 Double Rubs
FAA REGULATIONS:	Please inquire about necessary treatments available to comply with these requirements.	
CLEANING CODE:	Code S — Only mild, pure, water-free dry cleaning solvents may be used for cleaning this fabric. Cleaning by a professional furniture service is recommended. As with all upholstery fabrics, it is extremely important to PRE-TEST your cleaning method on a hidden area of the fabric to determine if the color bleeds, or if the fabric shrinks. When in doubt, seek the help of a professional furniture cleaner.	
LIGHT FASTNESS DATA:	A.A.T.C.C. Method	16A
	NAFM Requirements	40 Hrs.
	Safety Series/2	40+ Hrs.

Price List

Width	Pattern	Bolt Yardage (60 yards or more)	Cut Yardage
54"	**Safety Melange**	$_____ per yard	$_____ per yard
54"	**Safety Mosaic**	$_____ per yard	$_____ per yard
54"	**Safety Pinwheel**	$_____ per yard	$_____ per yard
54"	**Safety Texture**	$_____ per yard	$_____ per yard
54"	**Safety Twill Dot**	$_____ per yard	$_____ per yard

All Prices F.O.B. Hauppauge, New York

The samples in this book represent pattern/color standards. Since no two lots can be color matched identically, there may be a slight

GS Associates Inc.
IDCNY
30-20 Thomson Avenue
Long Island City, NY 11101
(718) 937-1880

March 11, 1991

THE PORT AUTHORITY OF N.Y. & N.J.
... SECURITY ASSURANCE DIV.
... DESIGN STANDARDS
MAR 26 1991
W- 4636 (3)
RECEIVED
... APPROACH
TENANT CONSTRUCTION REVIEW UNIT

Mr. Jim Mileto
dePolo/Dunbar Incorporated
330 West 42nd Street
New York, New York 10036

Re: Cedel, S.A.
One World Trade Center

Dear Mr. Mileto:

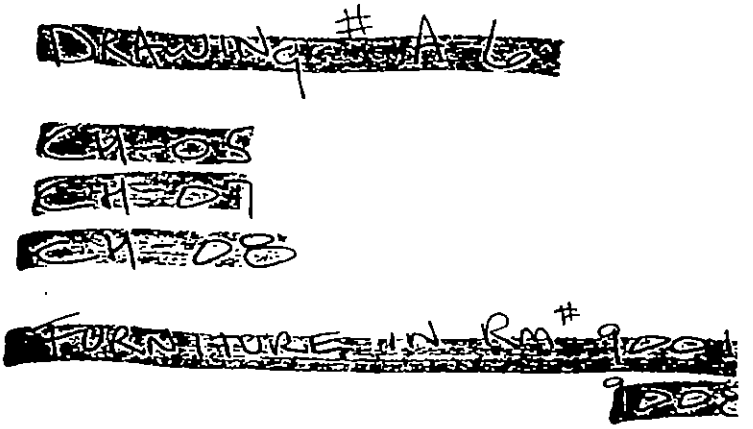
As per our telephone conversation, the Brayton Furniture line of Clou Sofa and Trasio Chair Collection can be upgraded with Isoguard Foam to meet all Port Authority fire codes.

If I can be of further assistance, please call.

Very truly yours,

Joe Solinsky

/js



Atelier International, Ltd. · 235 Express Street Plainview, N.Y. 11803
Telephone 516/935-6700
Telex 4758142
Telefax 516/935-6711

ai

March 8, 1991

Attention: Jim Mileto
DePolo Dunbar

New York and New Jersey Port Authority

Re: Ai Serenissimo Table.

No components of the Serenissimo table are flammable and should be acceptable to New York and New Jersey Port Authority. We would suggest though that a description of the table be submitted to the New York and New Jersey Port Authority and acceptance be verified in writing.

Re: Tentazione

Due to manufacturing difficulties compliance is not possible.

In the past we have successfully submitted the Le Corbusier pieces covered on leather. Since a precedent exists, this product is virtually assured of immediate compliance.

Sincerely,

Robert Ferraro
Research & Development Manager

cc: Z. Reyes

Fax Transmittal

Atelier International, Ltd.
International Design Center
30-20 Thomson Ave.
Long Island City, NY 11101
Telephone: 718/392-0300
Telefax: 718/392-1593

ai

To: DEPOO DUNBAR	Date: 3/18/91
Attn: JIM MILETO	Fax No.:
From: ZULEYKA REYES	No. of Pages:
Re: SERENISSIMO TABLE	Please advise if any pages are missing or illegible.

DEAR JIM,
FOLLOWING IS INFO ON THE TABLE.
I OUTLINED THE PARTS EXPLAINING PROCESS.

HOPE IT'LL HELP.

THANKS

ZULEYKA

al

Atelier International, Ltd.
235 Express Street
Plainview, NY 11803
Telephone: 516 935-6700
Telex 4758142

ACERBIS INTERNATIONAL

Encaustic Finishes: Also known as Venetian stucco," the encaustic technique has been used by Italian artisans for hundreds of years. The method - unsurpassed to this day - results in a unique chromatic range of authentic colors which can be applied to certain furniture designs. Derived from the colors and detail inherent in the landscape and figure painting of eighteenth-century fine artist Francesco Guardi (Venice, 1712 to 1793), encaustic is the symbolic expression of authentic Venetian art during its period of greatest splendor. Encaustic employs an exceptionally fine sand plaster mix, processed through a number of controlled stages. The coloring stage is executed by mixing natural soils with fluid limewash and plaster. The limewash burns the color, allowing it as it dries. (Hence, the Latin term encaustic is derived from the Greek word meaning "to burn.")

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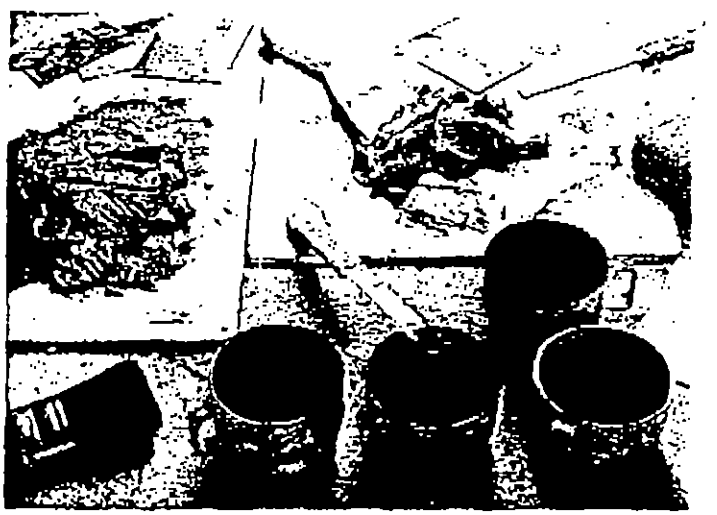

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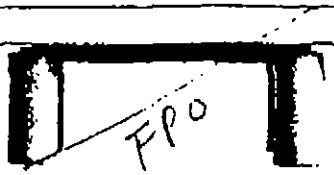

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▪ Available from Quick-ship program for model HS300 and HS310 in blue, green and grey legs.

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Julian Kau, General Manager,
Planning, Design & Construction, WT&ED
From: Ennala Ramabhushanam
Date: February 12, 1991
Subject: **WTC - ALTERATION APPLICATION W-4636 - CEDEL, S.A. - 1 WTC - 90TH FLOOR - GENERAL CONSTRUCTION**

Reference: Review Request dated 2/1/91

Copy To: G. Gaeta R. Wegel Job Folder
L. Menno Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

The previous recommendation to withhold approval to proceed with construction remains unchanged pending submission of the items indicated below being revised in accordance with the ten (10) requirements listed on the attached rider.

Drawings:

REMARKS: 1) This memorandum was transmitted to the Facility via OA on February 12, 1991.

for Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

KG/dm
att.

[redacted]

RIDER

ALTERATION APPLICATION W-4636

ARCHITECTURAL

1. Dwg. A-2, Construction Plan. Provide the following:

   a) Door 1. Provide a BS&A resolution of approval for the aluminum and glass doors at the rated corridor wall, per Section C26-604.4. (Repeat comment)

   b) Dwg. A-3, reflected ceiling plan. Submit a copy of the BS&A resolution of approval for the finish/ceiling, per Code Section C26-106.2. (Repeat comment)

2. Dwg. A-5, Finish Plan. Provide the following information:

   a) Submit documentation for all interior finishes as specified, indicating that they are in compliance with all the requirements of Code Section C26-504.10 regarding flame spread ratings, smoke developed ratings, and toxicity. (Repeat comment)

   b) Provide MEA approvals on certification from a registered laboratory and establish compliance with the requirements of C26-504(13d). (Repeat comment)

STRUCTURAL

*3. Dwg. A-6. Substantiate the adequacy of existing construction under added loads from file storage (N.Y.C. Building Code C26.110.4). (Repeat comment)

4. Dwg. A-8. Detail D. Ceiling support system shall agree with PANYNJ Dwg. S-1, "Lightweight Ceiling support system, 1 WTC and 2 WTC." (Repeat comment)

5. Dwg. A-9, Section 6. For metal studs supporting the suspended "ceiling fixture," indicate connection details to existing construction.

6. Dwg. SP-1, "Detail location of pipe in suspended ceiling." Submit connection detail of sprinkler pipe to the existing floor truss. (C26-110.2) (Repeat comment)

ELECTRICAL

7. Specify emergency battery packs for the exit signs, as there is no available means for connecting the signs on the street side of the main switch. N.Y.C. Building Code C26-606.2. (Repeat comment)

8. Dwg. E-2 and E-3. Show load and ampere-rating of each branch-circuit on which new loads are being added, and verify that the new loads will not overload existing panels. NEC 384-16, N.Y.C. Electrical Code B30-152.0 (fifteen-ampere general purpose branch-circuits), B30-153.0 (twenty-ampere branch lighting circuits), B30-154.0 (Appliance branch-circuits), and B30-155.0 (individual appliance branch circuits). (Modified repeat comment)

HVAC

9. Dwg. M-1. Ventilation in the Conference Room 9007 is not in compliance with the N.Y.C. Building Code, Section C26-1206.3 since the design supply air and outside air are less than that required by Code. The ventilation index shown on Dwg. M-3 shall be calculated based on the actual population of the room as shown on Dwg. A-6. Please note that the capacity of each of the induction units in this space is 60 cfm primary air of which 67% is outside air.

PLUMBING

OK 3/06/3

10. Dwg. P-1, Part Plan: Provide for spare 4"S, 3"V, 2"CW and 1"HW connections at the wet column(s) when installing connections in this location. (WTC Criteria). Clarify drawings to show new connection points to existing piping within the space utilized in lieu of wet column connections. (N.Y.C. Building Code C26-114.2) (Modified repeat comment)

T[illegible]ANT ALTERATION REVIEW REQUEST

ROUTING	Location
Quality Assurance	51N.
✓ Paul Cooper w/ 6	
In House	36
✓ R. Becker (E)	w/1
V. Levenson (S)	
✓ Sen Pu Chiao (M)	w/1
WT&EDD Construction	[illegible]
Paul Cavanagh	36
Operations	B2
Tom Cancelliere	211
Risk Management	257
John Foye (PATHSIDE)	4 FL
Asbestos	
FRANK BOYCE	63N.

Applicant's Name: CEDEL, S.A.

T.A.A. No. 4636

Contract No. 591.970

Location: WTC/ 90th FL

Date: 2-1-91

Facility: The world Trade Center

Dwg. No(s). See list of dwgs on dwg # A-1

✓ Please review attached Application and forward comments to:

Attached are revised drawings. Please review.

829 | JOHN P. VINCIGUERRA | 36 W. | 435-2960

Org. Unit | Contact | Fm. No. | Ext.

NOT LATER THAN 2-15-91

G. GAETA
supervisor

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

Submission: 1st [ ] 2nd [✓] 3rd [ ] 4th [ ] 5th [ ] 6th [ ] 7th [ ]

Construction Cost: $ 200,000

Description of Work:

[✓] General Construction Including : [ ] Construction Limited To :

[ ] Minor Work Including :

[✓] Carpentry [ ] Structural [✓] Electrical

[✓] HVAC [✓] Plumbing [✓] Sprinkler

[ ] Other _____

office copy

1991 (2)

W-4636
ALTERATION APPLICATION

Also Attached Are:

[ ] BS&A / MEA Resolutions [ ] Laboratory Test Reports For Carpeting

[ ] Catalog Cuts [ ] Samples [ ] _____

[ ] Consultants' Responses to Port Authority Review Comments

cc: G. GAETA, E. Daly, J. Kau, J.P VINCIGUERRA, A. Preschle, G. Rossi, J. Uryini, R. wegel, G. wenger, T. LYNCH

Gerard Gaeta for Title Manager, Contract and Tenant Services Division Date 7/1/91

Herbert Kunstadt Associates PC
CONSULTING ENGINEERS

January 21, 1991

Mr. Steven Brooks
dePolo/Dunbar Inc.
330 West 42nd Street
New York, NY 10036

Re: Cedel S.A. - Port Authority Comments

Dear Steven:

We refer to the review comments prepared by the Port Authority and which you faxed to us on January 2, 1991, and the written response which we received on January 17, 1991.

For easy reference, we are using the same numbers as used by the Port Authority in our response, as follows:

GENERAL

1. All Drawings will be signed and sealed.

ARCHITECTURAL

No Comment.

RECEIVED
FEB 01 1991
PORT AUTHORITY OF NY & N.J.
WT/ED DEPARTMENT, 1WTC

STRUCTURAL

4. and 5. - No Comment.

6. Complied with.

MECHANICAL

7. Index of Ventilation will be shown for each room or space on the Drawings.

8. Fire Damper will be clarified.

9., 10, and 11. All complied iwth.

ELECTRICAL

12. We discussed this item with the Port Authority Electrical Engineer, and he advised us that we may connect the exit sign to the same circuit that the previous exit sign had been connected to, and emergency battery packs are therefore not required.

13. We have not increased the ratings, nor have we added any circuit breakers to the existing electrical panels. We have

381 FIFTH AVENUE NEW YORK NY 10016 FAX (212) 689-2159 TEL (212) 696-0720

used the existing and spare breakers on the existing panels and as these panels had been designed for these branch circuits, we are of the opinion that the verification of the existing loads is not required.

14, 15, 16, 17, 18. These have all be complied with.
19. Existing panelboards and components have been used.
20. Complied with.
21. Existing or new afterset fittings have not been used in the design.
22 thru 29: All complied with.
30. All existing being used.
31. No new feeder.
32. No new panelboard being used.
33., 34, 35: Complied with.
36. Note has been added to Drawing.
37. & 38: Complied with.
39. No coring required.

PLUMBING

40., 41 & 42: Complied with.
43. The design is reusing existing piping in the space and no connections are being made at the wet column.
45 thru 47: Complied with.

FIRE PROTECTION

48 Thru 51: Complied with.
52. Complied with.
53. Complied with.
54. Complied with.

Please call if you have any questions.

Sincerely yours,

HERBERT KUNSTADT ASSOCIATES PC

Leslie Kahn, PE
Vice President

RECEIVED
JAN 1991
PORT AUTHORITY OF NY & N.J.
ENGINEERING DEPARTMENT, 1WTC

cedel.lt2/ltrs-14

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Julian Kau, General Manager,
Planning, Design & Construction, WT&ED
From: Ennala Ramabhushanam
Date: December 26, 1990
Subject: **WTC - ALTERATION APPLICATION W-4636 - CEDEL, S.A. - 1 WTC - 90TH FLOOR - GENERAL CONSTRUCTION**

Reference: Review Request dated 12/12/90

Copy To: G. Gaeta R. Wegel Job Folder
L. Menno Chrono Folder

A review of the material submitted with the referenced request for the subject application has been made.

It is recommended that approval to proceed with construction be withheld pending submission of the items indicated below being revised in accordance with the sixteen (16) requirements listed on the attached rider.

Drawings:

REMARKS: 1) This memorandum was transmitted to the Facility via OA on December 26, 1990.

for Ennala Ramabhushanam, P.E.
Manager
Quality Assurance Division

KG/je
att.

RIDER

ALTERATION APPLICATION W-4636

GENERAL

*1. All drawings shall bear the registration number seal and signature of the architect or engineer who prepared or supervised the preparation of these plans in compliance with N.Y.C. Building Code Section C26-110.2.

ARCHITECTURAL

2. Dwg. A-2, Construction Plan. Provide the following:

   a) Door 1. Provide a BS&A resolution of approval approval for the aluminum and glass doors at the rated corridor wall, per Section C26-604.4.

   b) Indicate exit signs in compliance with Code Section C26-606.1.

   c) The partition type 4 at the rated corridor shall be a 2-hour rated partition as per Code Section C26-504.1.

   d) Specify that all wood work shall be fire retardant in compliance with Code Section C26-502.6.

   e) Dwg. A-3, reflected ceiling plan. Submit a copy of the BS&A resolution of approval for the finish/ceiling, per Code Section C26-106.2.

3. Dwg. A-5, Finish Plan. Provide the following information:

   a) Submit documentation for all interior finishes as specified, indicating that they are in compliance with all the requirements of Code Section C26-504.10 regarding flame spread ratings, smoke developed ratings, and toxicity.

   b) Provide MEA approvals on certification from a registered laboratory and establish compliance with the requirements of C26-504(13d) regarding flammability.

STRUCTURAL

*4. Dwg. A-6. Substantiate the adequacy of existing construction under added loads from file storage (N.Y.C. Building Code C26.110.4).

5. Dwg. A-8. Detail D. Ceiling support system shall agree with PANYNJ Dwg. S-1, "Lightweight Ceiling support system, 1 WTC and 2 WTC."

6. Dwg. SP-1, "Detail location of pipe in suspended ceiling." Submit connection detail of sprinkler pipe to the existing floor truss. (C26-110.2)

ELECTRICAL

7. Dwg. E-1, Specifications. PVC is not to be used in the World Trade Center. Therefore, replace wire type THHN (PVC insulated) with non-PVC insulated/jacketed conductors, such as wire types RHW, RHH, XHHW, etc.

8. Specify emergency battery packs for the exit signs, as there is no available means for connecting the signs on the street side of the main switch. N.Y. City Building Code C26-606.2.

9. Dwg. E-2 and E-3. Show loads of existing panels' branch-circuits on which new loads are being added. Also, verify that the new loads will not overload existing panels. NEC 384-16, N.Y. City Electrical Code B30-152.0, et seq.

HVAC

10. Dwg. M-1. Provide index for ventilation for each room or space as required by the N.Y.C. Building Code Section C26-116.3(a)(3). The index table shown on Dwg. M-3 is not adequate to verify that the ventilation in each room or space is in compliance with C26-1206.3.

11. Dwg. M-1. Clarify whether the existing transfer duct from the reception to the lobby is provided with fire damper. Show on the plan the fire damper, whether existing or new. RS 13-1, Section 3-3.2.

PLUMBING/SPRINKLER

12. Dwg. P-1. Part Plan: Provide for spare 4"S, 3"V, 2"CW and 1"HW connections at wet column when installing connections for this project (WTC criterion).

13. Dwg. P-2. Note 9: "No-Hub" style piping joints are not permitted in WTC piping systems (WTC criterion).

14. Dwg. SP-1: Indicate the static pressure at the floor control valve for hydraulic calculations regarding the proposed sprinkler system (WTC criterion and NYC Bldg. Code Section C26-116.1h).

15. Dwg. SP-1: Sprinklers are required in all closets (WTC criterion).

16. Provide thermal insulation for freeze control on all sprinkler piping running parallel to the building exterior walls and 15 feet or closer to such walls (WTC criterion and NYC Building Code Section C26-1703.13).

12/12

TENANT ALTERATION REVIEW REQUEST

ROUTING	Location
Quality Assurance	51N
3 Paul Cooper w/3	
In House	36
1 R. Becker (E) w/1	
V. Levenson (S)	
1 Sen Pu Chiao (M) w/1	
WT&EDD Construction	386
1 Paul Cavanagh w/1	
Operations	B2
1 Tom Cancelliere w/1	211
Risk Management w/1	257
1 John Faye (PATHSIDE)	4 Fl
Asbestos	
1 FRANK BOYCE w/1 (LOCATION PLAN)	65N

Applicant's Name: CEDEL, S.A.

Facility: The world Trade Center

Dwg. No(s).: See Attached List of Dwgs

T.A.A. No.: W-4636

Contract No.: 591.970

Location: 1 WTC - 90th Fl

Date: 12-12-90

✓ Please review attached Application and forward comments to:

___ Attached are revised drawings. Please review.

Org. Unit	Contact	Phone No.	Ext.
829	1 JOHN P. VINCIGUERRA	1 36W.1 466-7077	

NOT LATER THAN: 12-27-90

G. GAETA
supervisor

If no reply is received by above date, your concurrence will be assumed unless arrangements have been made for additional time for review.

Submission: [X] 1st [ ] 2nd [ ] 3rd [ ] 4th [ ] 5th [ ] 6th [ ] 7th

Construction Cost: $200,000

Description of Work:

[X] General Construction Including : [ ] Construction Limited To :

[ ] Minor Work Including :

[X] Carpentry [ ] Structural [X] Electrical

[X] HVAC [X] Plumbing [X] Sprinkler

[ ] Other _____

THE PORT AUTHORITY OF N.Y. & N.J.
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
DEC - 3 1990

W-4636
ALTERATION APPLICATION

Also Attached Are:

[ ] BS&A / MEA Resolutions [ ] Laboratory Test Reports For Carpeting

[ ] Catalog Cuts [ ] Samples [ ] _____

[ ] Consultants' Responses to Port Authority Review Comments

cc: G.GAETA, E. Daly, J. Kau, J.P VINCIGUERRA, A. Preschle, G. Rossi, J. Uryini, R. wegel, G. wenger, T. LYNCH

for Title Manager, Contract and Tenant Services Division Date 12/12/90

PA 531
8-79

THE PORT AUTHORITY OF NY & NJ
One World Trade Center, New York, N.Y. 10048

For Port Authority use only	
FACILITY WTC	APP. NO.
DATE / /	APPLICANT'S NAME

TENANT CONSTRUCTION OR ALTERATION APPLICATION
(See Rider "F" for revisions to par. listed below and par. 5)

APPLICANT MUST READ THE TERMS AND CONDITIONS PRINTED ON THE REVERSE HEREOF

ALSO SEE ATTACHED RIDER "F"

PART ONE: Information to be furnished by Applicant (Refer to your lease or permit for required information)

Permission is hereby requested to perform the following described work on the space occupied by the Applicant

AT (FACILITY)	PURSUANT TO (LEASE, SPACE PERMIT) NO.	LOCATION (BUILDING # OR AREA) OF SPACE TO BE ALTERED
WTC		#1 World Trade Center 90th Fl.

DESCRIPTION OF WORK AND REASON: Erect new partitions. New suspended ceiling, new electric fixtures and wiring. Replace existing plumbing fixtures in toilet. Install new sink and dishwasher in Pantry. New A/C ductwork and diffusers. Rearrange sprinkler heads and add heads.

ESTIMATED COST OF WORK	ESTIMATED TIME TO COMPLETE (DAYS)	STARTING DATE	COMPLETION DATE
$ 200,000.00	90	1 / 2 / 91	4 / 2 / 91

Plans: Prints of each drawing must be submitted with copies of application. Include floor plan and show area affected by proposed work (size 8½" x 11" or larger).

TITLE OF DRAWING	DRAWING NO.	DATED
SEE ATTACHED LIST		

NAME & ADDRESS OF CONTRACTOR (IF NOT KNOWN, SUBMIT LATER)	NAME & ADDRESS OF ENGINEER OR ARCHITECT	TELEPHONE NO. / LICENSE NO.
C-P Construction corp. 231 W. 29th St. New York, N.Y. 10001	MARIO ANTHONY PESA ARCHITECT 449 W. 51st St. New York, N.Y. 10019	(212)765-3838 012525

SEND CORRESPONDENCE TO: (NAME & ADDRESS OF EMPLOYEE IN CHARGE OF WORK)
MR. PHIL HUMBERT
CEDEL, S.A.
One World Trade Center
Suite 8351
New York, NY 10010
TELEPHONE NO.

APPLICANT'S NAME (AS IT APPEARS ON LEASE OR PERMIT)
CEDEL, S.A.

ENGINEER OR ARCHITECT CERTIFICATION

I have supervised the preparation of plans and specifications for the entire work represented herein and hereby certify that they conform to the requirements of the respective enactments, ordinances, resolutions and regulations of the City, town or municipality in regard to construction and maintenance of buildings and structures and in regard to health and fire protection which would be applicable if the Port Authority were a private corporation.

REGISTERED ARCHITECT MARIO ANTHONY PESA No. 012525 STATE OF NEW YORK

BY (SIGNATURE OF AUTHORIZED REP.)	TITLE	DATE	SIGNATURE OF LICENSED PROF. ENGINEER OR ARCHITECT	DATE
x [signature]	VP	12/6/90	x [signature]	12/11/90

PART TWO: Prepared by Port Authority and returned to applicant

The above Application is ☐ *Approved* ☐ *Disapproved. Subject to the following conditions:*
The Contractor by signing below agrees to all the terms and conditions on this application and on the reverse side thereof, including #5 indemnifying the Port Authority and further agrees to be bound by all riders and schedules attached to this application.

Signature: x [signature] 12/11/90
Contractor's Name & Address / date

Signature of Officer/Partner:
x [signature] Dec 6, 1990
date

☐ Continued on Rider "A" etc.

Please advise the undersigned in writing, when this work has been Completed.

The Port Authority of New York and New Jersey

INSPECTED BY	DATE	BY	TITLE	DATE
	/ /		Deputy Director for Physical Facilities, WTD	/ /

mario a pesa architect
449 west 51st street
new york, ny 10019
(212) 765-3838

LIST OF DRAWINGS FOR #1 WORLD TRADE CENTER
CEDEL, S.A. 90th FLOOR

TITLE OF DRAWING	DRAWING NO.	DATED
GENERAL NOTES	A-1	12/6/90
CONSTRUCTION PLAN	A-2	12/6/90
REFLECTED CEILING PLAN	A-3	12/6/90
POWER/TELEPHONE/DATA PLAN	A-4	12/6/90
FINISH PLAN	A-5	12/6/90
FURNITURE PLAN	A-6	12/6/90
ELEVATIONS	A-7	12/6/90
DETAILS/SECTIONS	A-8	12/6/90
PARTITION TYPES/DETAILS HARDWARE SCHEDULE	A-9	12/6/90
DETAILS/SECTIONS	A-10	12/6/90
TELEPHONE PLAN	A-11	12/6/90
ELECTRICAL SPECIFICATION	E-1	12/7/90
FLOOR PLAN - LIGHTING	E-2	12/7/90
FLOOR PLAN- POWER	E-3	12/7/90
SPRINKLER PLAN & SPECIFICATIONS	SP-1	12/7/90
NYC DEPT. OF BUILDINGS SPRINKLERS NOTES	SP-2	12/7/90
PLUMBING PLANS, RISER & SPECIFICATIONS	P-1	12/7/90
NYC DEPT. OF BUILDING PLUMBING NOTES	P-2	12/7/90
MECHANICAL PLAN	M-1	12/7/90
SCHEDULE FIRE DAMPER & DETAILS	M-2	12/7/90
SPECIFICATIONS, INDEX, BUILDING DEPT. NOTES	M-3	12/7/90

VJ4636

REVIEW STATUS

Response To #	Coordinator	TCRU Memo	Approval	Facility Rider	Outstanding Comments	Remarks
-	KG.	12-26-90	—		16	, New offices • Finishes, file loads !
1	KG	2-12-91	—		10	"
2	KG.	4-5-91	—		9	"
3	KG	5-9-91	Yes		3	• Still no documentation !
4	KG	7-1-91	Yes		4	Documentation not Complete
5	KG	8-30-91	"		2	1A, 1S.
6	KG.	11-22-91	✓		NONE.	

W-4636 1WT6
90FL